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ABSTRACT

The program planning guide for ornamental horticulture was written to assist Applied Biological and Agricultural Occupations (ABAO) teachers in enriching existing programs and/or to provide the basis for expansion of offerings to include additional materials for the cluster areas of arboriculture, floriculture, greenhouse operation and management, landscaping, nursery operation and management, and turf management. Each guide includes the following components: an introduction (brief discussion of the subject matter); sample job titles and cluster areas (major job titles, D.O.T. numbers, O.E. numbers, and information about salaries, educational requirements, and career advancement opportunities); competencies for cluster areas and for job titles, stated as behavioral objectives; a core course outline (a representative sample of how a curriculum should be constructed, including references); sample teaching plans designed for one to five days in length (comprising cluster areas, unit titles, problem areas, a brief introduction, student performance objectives, a detailed outline of instructional content, learning activities, special materials and equipment, and student references). Also included are: specific and selected references; a brief description of school facilities; lists of equipment, supplies, and audiovisual materials; and a partial list of ways to increase teacher competencies. (BP)

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Volume V

PROGRAM PLANNING GUIDE IN ORNAMENTAL HORTICULTURE

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Development of Teachers' Guide and Students' Instructional Materials for Seven Selected Applied Biological and Agricultural Occupation Related Areas (PCB-A5-031)

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Date

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INTRODUCTION

The Program Planning Guides were written to assist the Applied Biological and Agricultural Occupations teacher in enriching the existing programs and/or to provide the basis for expansion of offerings to include an additional agricultural cluster area. For example, the current offering may be Agricultural Production with Agricultural Mechanics, and Agricultural Supplies and Services is to be added to the offering.

These guides are the result of a funded project coordinated by the Professional and Curriculum Development Unit, Division of Vocational and Technical Education, Board of Vocational Education and Rehabilitation in cooperation with the Agricultural Industries Department, Southern Illinois University, Carbondale, during the FY 1975. The project was entitled "Development of Teachers' Guide and Student Instructional Materials for Seven Selected ABAO (Applied Biological and Agricultural Occupations) Related Areas." The seven ABAO areas selected include:

1. Agricultural Production - O.E. Code 01.0100
2. Agricultural Supplies and Services - O.E. Code 01.0200
3. Agricultural Mechanics - O.E. Code 01.0300

4. Agricultural Products - O.E. Code 01.0400
5. Ornamental Horticulture - O.E. Code 01.0500
6. Agricultural Resources - O.E. Code 01.0600
7. Forestry - O.E. Code 01.0700

Major division, cluster area, and job titles were written with O.E. numbers, and only an occasional reference to D.O.T. The O.E. code was selected in that teachers in Illinois classify all of their students under this system.

The provisions of the SIU/C-DVTE project provided an opportunity for participation from throughout the Illinois Applied Biological and Agricultural Occupations staff. Each member contributed in his unique way, and they represent each of the four institutions which train DVTE staff, V.A.S., and ABAO teachers in community colleges and high schools.

The projects activities were coordinated by a Steering Committee. All major decisions on content, format, job titles, and final draft approval were the responsibility of the steering committee. They spent considerable time and effort in reviewing these guides. The steering committee was composed of the following members:

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Dr. Eugene Wood Professor and Chairman Agricultural Industries Department Southern Illinois University at Carbondale Carbondale, IL 62901	Agricultural Production Guide Author and Principal Investigator of Project

Each guide includes the following component parts.

Introduction Unique consideration for the subject matter area.

Sample Job Titles and Cluster Areas This includes information about salary, education requirements and career advancement opportunities. These job titles and cluster areas are coordinated with a brochure entitled "Applied Biological and Agricultural Occupations Career Directory" published by the Division of Vocational and Technical Education, 1035 Outer Park Drive, Springfield, IL.

Competencies for Cluster Areas and Competencies for Job Titles The competencies, stated in measurable terms, are presented by cluster areas and job titles.

Core Course Outline The core course outline is a representative sample of how a curriculum could be constructed to present the program.

Exemplary Teaching Plans This is a section which incorporates teaching plans for selected units in the outline. Their function is to provide sample plans which the ABAO teacher may follow in developing his respective units.

Reference The references are coded into the teaching plan and listed with their source in the reference section.

School Facilities, Equipment, and Supplies This provides the ABAO teacher with a source for major items which will be required to operate the program.

Audio Visual Materials This is a listing of currently available visual materials for use in teaching the respective subject matter areas.

Teachers Competencies and Training Available This is a brief review of sources where the teacher could secure additional skills to assist in delivering a quality program.

These Program Planning Guides were prepared to improve the quality and increase the scope of Applied Biological and Agricultural Occupations offerings available in Illinois. The Guides can only be successful with your review, adaption, adoption, and implementation.

INTRODUCTION TO THE ORNAMENTAL HORTICULTURE
OCCUPATIONAL PROGRAM PLANNING GUIDE

Getting Started in an Ornamental Horticulture Program

Facilities are an important part of an ornamental horticulture program but a new department can function with a few basic garden tools and equipment that can be built in shop. Many existing vocational agriculture departments have land laboratories that produce a profit and this may be one source of departmental generated funds that may be tapped.

Indoors:

An ornamental horticulture program may take place in the classroom and shop. Foliage plants can be grown inside under lights and propagation of these plants can also be done inside. Even a sunny window in the classroom or shop is enough to get started growing plants.

Outdoors:

Most students enjoy the outdoors; therefore, the total horticulture program and course outline should coincide with the seasons. Examples of outdoor activities include:

1. Improving a segment of turf on the school property by fertilizing, weed control, or aerification (leave control strip for comparison). Use school equipment and supplies when possible. Check with your Building Superintendent or Head Custodian.

2. Pruning of the school trees and shrubs is a perfect follow-up after classroom instruction on the unit. If your department does not have pruning equipment, use the schools, teachers, students, or community resources.
3. Raising nursery stock plants is where principles of propagation, pruning, care, and pest control can be practiced.
4. A school vegetable or flower garden may be established to serve as testing plots for varieties; serve as an ideal garden; or to just practice good gardening principles.
5. A self-supporting program can be established in a school greenhouse or even leased greenhouse in the community. Polyethylene covered greenhouses are inexpensive and they are primarily what many commercial growers are now using. Plants grown in the school greenhouse can pay for the heat, electricity, and supplies needed to run the program. Plants may be sold in the high schools, to feeder grade schools, to the P.T.A., to church groups, and to other non-profit organizations. This allows for a bigger market and improves community public relations. The idea behind the greenhouse is to give students more practical experience, allow them to enjoy plants because they are better able to care for them, and finally,

to create consumers of horticultural plants and products.

The Purpose

This publication is designed to help the agriculture occupations teacher initiate a horticulture program or even improve an existing ornamental horticulture program. For the purpose of this program planning guide, seven representative areas of horticulture are listed with job titles under each. O.E. codes and D.O.T. numbers are included in the guide to assist the instructor in locating more information for the job titles. The areas of horticulture as listed are:

1. Arboriculture
2. Floriculture
3. Greenhouse Operation and Management
4. Landscaping
5. Nursery Operation and Management
6. Turf Management
7. Ornamental Horticulture, Other

A list of competencies was developed for each job title and stated in measurable terms. The job title objectives are written specifically to include most competencies the student should be able to do for entry level employment. The competency lists are not meant to be complete, but representative of student needs.

The evaluation procedures used in the competencies are examples of ways an instructor may evaluate a student. The degree of proficiency is arbitrary and may be changed to suit

the individual vocational agriculture department.

The references used in the competencies are listed in the core course outline as well as in the list of references.

A core course outline with selected references, was developed from the most commonly identified job title competencies. The references were selected to serve Illinois and the Midwest area where practical application is necessitated.

Detailed teaching plans are developed as examples in each of the areas. Hopefully, the equipment and references listed in the teaching plans will have a wide range of applicability based on a departments financial ability.

In writing this planning guide, many references such as curriculum guides and instructional materials were used from Ohio, Oregon, California, and Illinois.

A special thanks goes to my wife, Dianne, and to Teresa Sowski for their tremendous supportive efforts that helped complete this program planning guide.

SAMPLE CLUSTER AREAS AND JOB TITLES

The cluster areas and job titles included in this guide are:

Arboriculture

- Tree Surgeon Assistant

Floriculture

- Florist Salesman

Greenhouse Operation & Management

- Greenhouse Worker

Landscaping

- Landscape Worker
- Park Employee

Nursery Operation & Management

- Nursery Worker
- Garden Center Salesman

Turf Management

- Turf Worker

Ornamental Horticulture, Other

- Horticulture Maintenance Mechanic

SAMPLE JOB DESCRIPTIONS

MAJOR JOB TITLE	Tree Surgeon Assistant
O.E. NUMBER:	01.05 01
D.O.T. NUMBER:	409.186
LOCATION:	Private Tree Surgeon State and Federal Park Services Utilities Companies Orchards
SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on degree of competency, experience, responsibility, and type and size of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Tree Surgeon Assistant Tree Surgeon Owner of business

MAJOR JOB TITLE:	Florist Salesman
O.E. NUMBER:	01.05 02
D.O.T. NUMBER:	260.458
LOCATION:	Private Retail Florists Wholesale Florists
SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on degree of competence, experience, responsibility, and type and size of firm.

EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Salesman Supervisor Assistant Manager Manager or Owner
MAJOR JOB TITLE:	Greenhouse Worker
O.E. NUMBER:	01.05 03
D.O.T. NUMBER:	406.887
LOCATION:	Commercial and Private Greenhouses Private Estates Seed Companies Large Companies
SALARY:	Starting salary is $2.10/hr. and up ($4,200-$8,000 per year). Depends on competence, experience, responsibility, and type and size of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree is obtainable.
CAREER ADVANCEMENT:	Laborer Foreman or Supervisor Assistant Manager Manager or Owner
MAJOR JOB TITLE:	Landscape Worker
O.E. NUMBER:	01.05 04
D.O.T. NUMBER:	407.887
LOCATION:	Private Landscape Companies Private Estates State Institutions Large Companies

SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on competence, experience, responsibility, and type and size of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Laborer Foreman or Supervisor Assistant Manager Manager or Owner of business

MAJOR JOB TITLE:	Park Employee
O.E. NUMBER:	01.05 04
D.O.T. NUMBER:	407.887
LOCATION:	State and Federal Park Services Private Recreation Areas State Conservation Department
SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on degree of competence, experience, responsibility, and type and size of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Laborer Foreman Supervisor Manager

MAJOR JOB TITLE:	Nursery Worker
O.E. NUMBER:	01.05 05
D.O.T. NUMBER:	406.884

LOCATION:	Private Nursery Landscape Contractors Highway Department State Conservation Department
SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on degree of competence, experience, responsibility, and type and size of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Laborer Foreman or Supervisor Assistant Manager Manager or Owner

MAJOR JOB TITLE:	Garden Center Salesman
O.E. NUMBER:	01.05 05
D.O.T. NUMBER:	277.358
LOCATION:	Large Retail Stores Nursery Local Garden Centers
SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on degree of competence, experience, responsibility, and size and type of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Salesman Foreman or Supervisor Assistant Manager Manager or Owner

MAJOR JOB TITLE:	Turf Worker
O.E. NUMBER:	01.05 06

D.O.T. NUMBER:	407.884
LOCATION:	Country Clubs Golf Courses Turf Supply Companies State and Federal Parks Highway Department
SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on degree of competence, responsibility, experience, and type and size of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Worker Foreman or Supervisor Assistant Manager Manager or Owner

MAJOR JOB TITLE:	Horticulture Maintenance Mechanic
O.E. NUMBER:	01.03
D.O.T. NUMBER:	638.281
LOCATION:	Highway Department Greenhouse Construction Private Recreation Areas State Institutions Landscaping Companies Lawn and Garden Centers
SALARY:	Starting salary is $2.10/hr. on up ($4,200-$8,000 per year). Depends on degree of competence, experience, responsibility, and type and size of firm.
EDUCATION:	A high school education with a program in ornamental horticulture is usually required. A two-year degree from a community college is desirable. A B.S. degree can be obtained.
CAREER ADVANCEMENT:	Laborer Supervisor or Foreman Manager or Owner

COMPETENCIES FOR CLUSTER AREAS

V. Ornamental Horticulture

A. Arboriculture

EE 1. The student, given trees and shrubs common to Illinois, shall be able to identify them from pictures.

DA 2. Given a fruit tree, a deciduous tree, and an evergreen common to Illinois, the student shall be able to prune them according to Circular #1033 Pruning Evergreens and Deciduous Trees and Shrubs.

DA 3. Given tree insects, diseases and rodents common to Illinois, the student shall be able to identify them and determine how to control them according to The Nursery Worker Part II.

DA 4. Given a soil sample, the student shall be able to test the soil; interpret results, giving limestone and fertilizer application rates according to the V.A.S. Unit 4002 pH Test for Soil Acidity.

DA 5. Given horticultural hand tools and small power tools, the student shall demonstrate how to use them according to manufacturer's specifications.

DA 6. The student shall engage in keeping simple records, writing out customer orders, sales reports and cards according to The Nursery Worker Part II.

B. Floriculture

EE 1. Given the house plants and flowers sold in Illinois, the student shall be able to identify them in writing from pictures.

KEY: EE-ESSENTIAL for ENTRY
DA-DESIRABLE for ADVANCEMENT

EE 2. Given common house plants, bulbs, or artificial flowers, sold in Illinois, the student will demonstrate how to sell the item according to the Ohio State Unit Selling and Salesmanship.

DA 3. Given a variety of plant material, the student shall be able to design and make up floral arrangements and corsages according to the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls and Flowers to Wear Parts I, II, and III.

DA 4. Given cut flowers, a student shall demonstrate how to recondition, grade, package, and load the flowers according to The Nursery Worker, Part II.

EE 5. The student will role play in meeting customers and taking sales over the phone, according to the unit Selling and Salesmanship.

EE 6. The student will prepare a simple budget and a preliminary order of florist supplies for a full year according to The Nursery Worker, Part II.

C. Greenhouse Operation and Management

EE 1. Given common greenhouse plants, insects and diseases, the student will identify them, in writing from pictures.

EE 2. A student shall be able to propagate plants asexually or sexually depending on the plant according to the Ball Red Book.

EE 3. Given a variety of soil growing medias, the student shall prepare a common greenhouse potting mix of 1 part soil, 1 part perlite, and 1 part peat moss according to the Ball Red Book.

DA] 4. The student shall demonstrate his ability to care for chrysanthemums by propagating, potting, disbudding, spraying, lighting, pinching and cutting the plants over a given period of time according to Flower and Plant Production in the Greenhouse.

DA 5. The student shall be able to determine how to regulate the greenhouse environment for a crop of chrysanthemums according to the Ball Red Book.

EE 6. The student shall be able to apply insecticides, fungicides, herbicides, growth regulants, fumigants and rodenticdes as outlined on the label.

D. Landscaping

EE 1. Given trees, shrubs, ground cover and bulbs commonly used for landscaping in Illinois, the student will be able to plant it according to the reference Landscaping Your Home.

EE 2. Given a plot of ground to seed into lawn, the student shall grade, condition, lime, fertilize, seed, water, and establish a suitable lawn according to V.A.S. Unit #5008 Establishing a Lawn.

EE 3. Given pictures of trees, shrubs, ground covers, grasses and flowers commonly used for landscaping in Illinois, the student shall be able to identify them in writing from pictures.

EE 4. Given a home layout, the student will inventory the property, interview the owner, and then draw up a landscape plan to fit the families need according to Landscaping Your Home.

DA 5. Given hand tools and small power equipment used in landscaping, the student will demonstrate how to use and recondition the tools according to the manufacturer's specifications.

E. Nursery Operation and Management

EE 1. Given trees and shrubs commonly used in landscaping in Illinois, the student will be able to identify them from pictures in writing.

EE 2. The student shall be able to propagate sexually or asexually, trees and shrubs commonly used in Illinois according to the text Plant Propagation.

EE 3. The student shall be able to transplant, prune, spray, fertilize, and water stock plants in a nursery according to The Nursery Worker, Part II.

EE 4. The student shall be able to take soil sample tests and make recommendations based on the soil analysis according to the Urbana Laboratory Soil Test Chart.

EE 5. The student shall be able to use and operate hand tools, small power equipment, trucks and tractors according to the manufacturer's specifications.

EE 6. Given a tree or a shrub commonly used in landscaping in Illinois the student shall be able to ball and burlap it according to the V.A.S. slidefilm Balling and Burlapping Trees and Shrubs.

F. Turf Management

EE 1. The student shall be able to identify turf grass specimens and grass seeds commonly used in Illinois from pictures.

EE 2. Given a plot of ground the student will prepare the ground, apply lime and fertilizer, sow seed and irrigate the lawn seedbed according to the V.A.S. Unit #5008 Establishing a Lawn.

EE 3. Given the following, a student will appply them according to the label:
a. Weedicide
b. Herbicide
c. Insecticide
d. Fungicide
e. Rodenticide
f. Pesticide

DA 4. Given the following equipment, the student will demonstrate how to operate them according to the manufacturer's recommendations:
a. Fertilizer spreader
b. Sprayer
c. Rototiller
d. Aerator
e. Turf mowers
f. Truck
g. Tractor

DA 5. Given a non-functioning small engine the student will troubleshoot the problem and get the engine running according to Small Engines, Volume I.

DA 6. Given an existing disease, whether the disease be insects, weeds, or other pests; the student will identify the problem and tell in writing how to control the pest according to the appropriate V.A.S. unit.

G. Ornamental Horticulture, Other

EE 1. Given one of the following a student will complete the exercise according to Shopwork on the Farm:
   a. Electrical schematic
   b. Plumbing exercise
   c. Woodworking exercise
   d. Concrete laying erercise
   e. Arc welding exercise
   f. Oxyacetylene exercise

DA 2. Given an existing greenhouse, a student will demonstrate ability to do the following exercises according to the manufacturers recommendations and the Ball Red Book:
   a. Light a gas heating unit
   b. Set timer on an automatic watering system
   c. Set timer to light chrysanthemums at night
   d. Set thermostats for a given day and night temperature

EE 3. Given an Operators Manual, the student will complete an exercise in writing on engine specifications, lubrication frequency, periodic adjustments, and other maintenance requirements.

DA 4. Given a small engine the student will be able to do the following according to the Operators Manual:
   a. Check fluid levels
   b. Tune-up engine
   c. Dismantle engine and take specifications
   d. Reassemble the engine and make adjustments
   e. Lubricate engine

EE 5. The student will be able to do adjustments, maintenance, and service on horticultural power tools according to the manufacturer's specifications.

EE 6. The student will sharpen horticultural tools according to the manufacturer's specifications and or the book Shopwork on the Farm.

V. Ornamental Horticulture

A. Arboriculture

Tree Surgeon Assistant

EE 1. The student given 50 trees common to Illinois shall be able to identify them in writing, from pictures, with 80 per cent accuracy.

EE 2. The student given 50 shrubs common to Illinois shall be able to identify them in writing, from pictures, with 80 per cent accuracy.

DA 3. Given a fruit tree common to Illinois, the student shall be able to prune it to the satisfaction of the instructor, with 80 per cent accuracy according to recommended procedures.

DA 4. Given a deciduous tree common to Illinois, the student shall be able to prune it to the satisfaction of the instructor, with 80 per cent accuracy according to recommended procedures.

DA 5. Given an evergreen shrub common to Illinois, the student shall be able to prune it to the satisfaction of the instructor, with 80 per cent accuracy according to recommended procedures.

DA 6. Given a specific tree and shrub, the student shall be able to advise orally and in writing another person on their proper use and care based on The Nursery Worker, Part II, with 80 per cent accuracy.

DA 7. The student shall be able to determine how to add soil conditioners to a soil based on soil analysis, by putting it down in writing, with 80 per cent accuracy.

KEY: EE-ESSENTIAL for ENTRY
DA-DESIRABLE for ADVANCEMENT

DA 8. The student shall be able to test a sample of soil, by testing a soil sample for pH according to Urbana Laboratories Soil Test Chart with 90 per cent accuracy.

DA 9. Given soil sample analysis results, the student will add fertilizer elements and lime based on the test results.

DA 10. The student shall know how to correct poor drainage and put it down in writing when given an example of such, to the satisfaction of the instructor.

EE 11. Given examples of ten tree insects common to Illinois, the student shall be able to identify them in writing, from pictures, with 80 per cent accuracy.

EE 12. Given examples of ten tree diseases common to Illinois, the student shall be able to identify them in writing, from pictures, with 80 per cent accuracy.

EE 13. Given examples of five tree rodents common to Illinois, the student shall be able to identify them in writing, from pictures, with 80 per cent accuracy.

DA 14. Given a tree insect common to Illinois, the student shall be able to determine how to control the insects according to the V.A.S. Unit #5005a Tree and Shrub Insects and Their Control, by putting it down in writing to the satisfaction of the instructor.

DA 15. Given a tree disease common to Illinois, the student shall be able to determine how to control the disease according to the V.A.S. Unit #5005a Tree and Shrub Insects and Their Control, by putting it down in writing.

DA 16. Given a tree rodent common to Illinois, the student shall be able to determine how to control the rodents according to The Nursery Worker, Part II, putting it down in writing.

DA 17. The student shall be able to mix spray materials according to the manufacturer's specifications.

DA 18. The student shall be able to apply an insecticide, fungicide, and rodenticide according to

manufacturer's specifications, with 80 per cent accuracy.

DA 19. The student shall be able to determine how to apply chemicals to control pests according to The Nursery Worker, Part II, by actually applying the chemicals with 80 per cent accuracy.

DA 20. The student shall use and condition five hand tools according to the satisfaction of the instructor.

DA 21. The student shall be required to engage in keeping simple records (time, work schedule, maintenance record, and inventory of plant materials and equipment) according to The Nursery Worker, Part II, by handing in the written records.

EE 22. The student will apply himself to both written and oral orders given by the instructor. The orders must be carried out to the satisfaction of the instructor.

EE 23. Given directions and product information, the student will read them from the label aloud before the teacher, with 90 per cent accuracy.

EE 24. The student will engage in writing out customer orders, sales reports, and cards to the satisfaction of the instructor.

EE 25. The student will role play the taking of orders over the phone, to the satisfaction of the instructor.

EE 26. The student will prepare a list of thirty items that will help him get along better with customers, employers, and fellow workers and hand this list in at the end of the period. This is to be based on the reference, Human Relations in Business, and is to meet the satisfaction of the instructor.

EE 27. Given a specific tree, the student shall remove the tree from the nursery according to The Nursery Worker, Part II with 80 per cent accuracy.

EE 28. Given a specific tree or shrub common to Illinois, the student shall plant it according to The Nursery Worker, Part II with 80 per cent accuracy.

DA 29. Given a small power tool, the student shall demonstrate how to operate it according to manufacturer's specifications with 80 per cent accuracy.

DA 30. Given a diseased tree, the student shall scrape the decayed matter from cavities and fill the holes with cement, according to the teacher reference entitled Tree Maintenance, by P. R. Pirone.

B. Floriculture

Florist Salesman

EE 1. Given 100 house plants and flowers, the student shall be able to identify them in writing from pictures with 80 per cent accuracy.

DA 2. Given a specific occasion, the student shall select the proper natural or artificial flowers and foliage, according to the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls.

EE 3. The student shall be able to determine when 5 plants need water by checking the soil moisture in the pot with his fingers and observing wilting of plant leaves with 80 per cent accuracy.

EE 4. Given a common cut flower used in flower arrangements, the student shall be able to give proper advice on the care of the plant material according to the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls with 80 per cent accuracy.

EE 5. Given a common house plant, the student will demonstrate how to sell the item according to the Ohio State unit Selling and Salesmanship, to the satisfaction of the instructor.

EE 6. Given a tulip bulb, the student will demonstrate how to sell the item according to the Ohio State unit Selling and Salesmanship, to the satisfaction of the instructor.

EE 7. Given an artificial flower, the student will demonstrate how to sell the item according to the Ohio State unit Selling and Salesmanship, to the satisfaction of the instructor.

EE 8. The student will role play the taking of orders over the phone according to the Ohio State Unit Selling and Salesmanship, to the satisfaction of the instructor.

DA 9. The student shall demonstrate how to set up a sales display according to the Ohio State Unit Advertising and Promotion, to the satisfaction of the instructor.

DA 10. The student shall advise customers on two common house plant problems in writing with 80 per cent accuracy.

DA 11. The student shall be able to select and hand in, in writing, the five most popular house plants based on local market demand, with 80 per cent accuracy.

EE 12. The student shall be able to demonstrate how to recondition a type of cut flower based on the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls with 80 per cent accuracy.

EE 13. Given two different kinds of flowers, the student shall demonstrate how to cut them based on the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls, with 80 per cent accuracy.

DA 14. The student given a variation of plant material, shall be able to design and make up a floral arrangement based on the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls to the satisfaction of the instructor.

DA 15. Given the plant materials, the student shall design and make up a corsage according to the California Polytechnic College Slidefilms Flowers to Wear Parts I, II, and III, to the satisfaction of the instructor.

EE 16. The student shall be able to design a simple window display according to the Ohio State Unit Advertising and Promotion to the satisfaction of the instructor.

DA 17. The student shall be able to demonstrate how to package a plant according to The Nursery Worker, Part II with 80 per cent accuracy.

DA 18. The student shall be able to demonstrate the proper way of loading five different kinds

of plants and materials according to The Nursery Worker, Part II with 80 per cent accuracy.

EE 19. The student shall be able to demonstrate by example how to grade five plants according to size and quality with 80 per cent accuracy.

DA 20. The student will be required to engage in keeping simple records (time, work schedule, inventory of materials and equipment, etc.) according to The Nursery Worker, Part II, with 80 per cent accuracy.

DA 21. The student will prepare a simple budget according to The Nursery Worker, Part II meeting a minimum of 80 per cent of the criterion established by the instructor.

DA 22. The student will prepare a record of invoices, post bills, and file according to The Nursery Worker, Part II, meeting a minimum of 80 per cent of the criterion.

DA 23. The student will prepare a summary audit of a budget meeting 80 per cent of the criterion established by the instructor.

DA 24. The student shall prepare a preliminary order of florist supplies for a full year based on the previous year's records and hand it in, in writing, with 80 per cent accuracy.

EE 25. The student will be required to role play the meeting of customers, and answering questions and complaints, according to the Ohio State Unit Selling and Salesmanship, to the satisfaction of the instructor.

EE 26. The student will apply himself to both oral and written orders given by the instructor. The orders must be carried out to the satisfaction of the instructor.

EE 27. Given directions and product information, the student will read them aloud before the teacher, with 90 per cent accuracy.

EE 28. The student will engage in writing out customer orders, sales reports, and cards given by the instructor orally, with 80 per cent accuracy.

EE 29. The student will role play the taking of orders over the phone according to the Ohio State Unit Selling and Salesmanship, to the satisfaction of the instructor.

EE 30. The student will prepare a list of 30 items that will help him get along better with customers, employers, and fellow workers. This is to be based on Human Relations in Business, and is to meet the satisfaction of the instructor.

C. Greenhouse Operation and Management

Greenhouse Worker

EE 1. Given 100 common greenhouse plants, the student shall be able to identify them from pictures in writing, with 80 per cent accuracy.

EE 2. The student shall be able to select 10 plants suitable for hanging baskets and pot them so that they are suitable for sale.

EE 3. The student shall be able to prepare and treat seeds so that they will germinate and have 90 per cent survival.

EE 4. The student shall be able to demonstrate how to plant 10 different kinds of seeds and seedlings as to get 90 per cent survival.

DA 5. The student shall be able to demonstrate how to propagate 10 plants by budding, grafting, layerage, and division with 80 per cent suvvival.

EE 6. The student shall be able to take and propagate 5 cuttings of 10 different plants with 80 per cent survival.

EE 7. Given 10 rooted cuttings, the student shall be able to transplant them properly into containers or the field with 80 per cent survival.

EE 8. The student shall be able to prepare a rooting medium according to the V.A.S. Unit #5006 Producing Plants by Asexual Propagation, to the satisfaction of the instructor.

EE 9. The student shall be able to demonstrate how to care for young plants according to the

Ball Red Book, to the satisfaction of the instructor.

EE 10. The student shall be able to demonstrate how to care for stock plants according to the Ball Red Book, to the satisfaction of the instructor.

EE 11. The student shall be able to demonstrate how to prepare a plant growing media according to the Ball Red Book, to the satisfaction of the instructor.

EE 12. The student shall be able to determine when geraniums need fertilizer according to the Ball Red Book, to the satisfaction of the instructor.

EE 13. The student shall be able to determine when chrysanthemums need water according to the Ball Red Book, to the satisfaction of the instructor.

EE 14. The student shall be able to demonstrate how to apply spray materials to control pests according to manufacturer's specifications.

DA 15. The student shall be able to determine how to regulate temperature, light, and humidity on african violets according to the Ball Red Book, to the satisfaction of the instructor.

DA 16. The student shall be able to explain how to regulate plant growth through use of chemicals on chrysanthemums, according to the manufacturer's specifications.

EE 17. The student will be given pots of chrysanthemums, and will be able to demonstrate how to plant, pot, disbud, cut and grade the plants over a given period of time according to Flower and Plant Production in the Greenhouse, to the satisfaction of the instructor.

EE 18. The student, given five plants shall be able to remove dead blossoms and bulb tops according to Ball Red Book, to the satisfaction of the instructor.

EE 19. Given a certain amount of soil and proper equipment the student will sterilize the soil according to Ball Red Book, to the satisfaction of the instructor.

EE 20. The student shall be able to demonstrate how to prepare two kinds of soil mixtures as specified by the instructor.

EE 21. The student shall be able to determine how to add soil conditioners to a soil for a given purpose according to Ball Red Book, to the satisfaction of the instructor.

EE 22. The student shall be able to demonstrate how to test a sample of soil for pH according to the Urbana Laboratories Soil Test Chart with 90 per cent accuracy.

EE 23. Given a soil sample the student shall be able to add fertilizer elements and lime as needed according to the Urbana Laboratories Soil Test Chart with 80 per cent accuracy.

EE 24. Given a pot with poor drainage, the student shall correct the poor drainage according to Ball Red Book, to the satisfaction of the instructor.

DA 25. The student shall be able to diagnose five common plant pest problems according to Ball Red Book with 80 per cent accuracy.

DA 26. Given five greenhouse pest problems, the student will be able to determine control measures according to Ball Red Book with 80 per cent accuracy.

DA 27. The student shall demonstrate how to apply an insecticide, a fungicide, and a rodenticide as outlined on the label with 80% per cent accuracy.

EE 28. The student shall be able to identify 20 annual bedding plant seedling specimens, in writing, with 80 per cent accuracy.

EE 29. The student shall properly use and condition five hand tools according to Shopwork on the Farm, to the satisfaction of the instructor.

DA 30. The student shall be required to engage in keeping simple records (time, work schedule, maintenance record, inventory of plant materials and equipment) according to the Ohio State Unit Greenhouse Worker with 80 per cent accuracy.

D. Landscaping

Landscape Worker

EE 1. Given a blue print, the student shall take 10 measurements and hand them in, in writing, with 80 per cent accuracy.

EE 2. Given a shrub, the student shall be able to dig a hole according to Landscaping Your Home, to the satisfaction of the instructor.

EE 3. The student shall be able to properly plant a shrub according to Landscaping Your Home, to the satisfaction of the instructor.

EE 4. Given a ground cover, the student shall plant it according to Landscaping Your Home, to the satisfaction of the instructor.

EE 5. Given a tree, the student shall be able to plant it according to Landscaping Your Home, to the satisfaction of the instructor.

EE 6. Given a bulb, the student shall be able to plant it according to Landscaping Your Home, to the satisfaction of the instructor.

EE 7. Given a shrub, the student shall be able to ball and burlap it according to the V.A.S. Slidefilm Balling and Burlapping Trees and Shrubs, to the satisfaction of the instructor.

EE 8. The student shall be able to plant a ground cover on a steep grade or bank according to the V.A.S. Slidefilm Ground Covers and Their Uses, to the satisfaction of the instructor.

EE 9. Given a kind of edging material, the student shall be able to install it to contain soil, aggregate, or turf according to manufacturer's specifications.

EE 10. Given an aggregate (river, rock, gravel) the student shall install it according to Landscaping Your Home, to the satisfaction of the instructor.

DA 11. The student shall be able to install simple structures (fences, wood decks, paths, patios, and waterfalls) into a landscape according to Landscaping Your Home, to the satisfaction of the instructor.

EE 12. Given a tractor with grading blade, the student shall practice all safety precautions while grading, as specified by the instructor.

EE 13. Given a selection of plants and materials, the student shall load them according to The Nursery Worker, Part II, to the satisfaction of the instructor.

DA 14. The student shall demonstrate how to prepare a seedbed for a lawn according to the V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 15. Given a seedbed, the student shall install a lawn from seed according to the V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 16. The student shall be able to install sod for a lawn according to V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 17. The student shall demonstrate how to irrigate a lawn according to the V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 18. The student shall demonstrate how to fertilize a lawn as needed according to the V.A.S. Unit #5008 Establishing a Lawn. to the satisfaction of the instructor.

EE 19. The student shall demonstrate how to cut, edge, and sweep a lawn according to the V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 20. The student shall demonstrate how to reseed and patch a lawn according to the V.A.S. Unit #5008 Establishing a Lawn, with 80 per cent accuracy.

EE 21. Given 10 basic hand tools, the student shall use them correctly as demonstrated by the instructor.

EE 22. Given 10 small pieces of small power equipment, the student shall operate them correctly as demonstrated by the instructor.

DA 23. Given the instructions, the student shall be able to calibrate sprayer and fertilizer spreading equipment according to the manufacturer's specifications.

EE 24. Given a soil mixture to prepare, the student shall be able to prepare it according to the California State Polytechnics Nursery Management Manual with 80 per cent accuracy.

EE 25. Given a sample of soil, the student shall be able to determine need for soil conditioners according to Landscaping Your Home, to the satisfaction of the instructor.

EE 26. Given a sample of soil, the student shall be able to add soil conditioners according to Guide to Organic Gardening, to the satisfaction of the instructor.

EE 27. Given a sample of soil, the student shall test it for pH according to Urbana Laboratories Soil Test Chart, with 90 per cent accuracy.

EE 28. Given 100 pictures of trees and shrubs commonly used in landscaping in Illinois, the student shall be able to identify them in writing with 80 per cent accuracy.

EE 29. Given a home layout, the student will draw views for both front and back yards of the house and draw them according to the book Landscaping Your Home, to the satisfaction of the instructor.

EE 30. Given a landscaping site, the student will inventory the liabilities of the property and its surroundings according to the book Landscaping Your Home, to the satisfaction of the instructor.

Park Employee

EE 1. The student shall be able to describe in writing how to mow turf according to the Circular #1082 Illinois Lawn Care and Establishment.

EE 2. The student shall be able to irrigate turf, flowers, shrubs, and trees according to the Circular #1082 Illinois Lawn Care and Establishment.

EE 3. The student shall be able to fertilize turf according to the recommendations specified on the fertilizer label.

EE 4. Given a shrub, the student shall trim it according to Circular #1033 Pruning Evergreens and Deciduous Trees and Shrubs, to the satisfaction of the instructor.

EE 5. Given a tree, the student shall prune it according to Circular #1033 Pruning Evergreens and Deciduous Trees and Shrubs, to the satisfaction of the instructor.

DA 6. The student shall spray turf and shrubs according to the labels recommendations.

EE 7. The student, given a plant bed shall be able to remove weeds manually and with a hoe, to the satisfaction of the instructor.

DA 8. The student shall be able to explain in writing how to control rodents and moles according to the reference The Nursery Worker, Part II, with 80 per cent accuracy.

EE 9. Given a tree, the student shall be able to plant it according to Landscaping Your Home, to the satisfaction of the instructor.

EE 10. Given a shrub, the student shall be able to plant it according to the reference Landscaping Your Home, to the satisfaction of the instructor.

EE 11. The student shall lay sod in order that it grows to the satisfaction of the instructor.

DA 12. The student shall be able to do minor electrical repairs on an exercise which simulates a building with an electrical problem according to Shopwork on the Farm, with 80 per cent accuracy.

DA 13. Given surfaces of wood, metal, and cement, the student shall demonstrate how to paint them according to Shopwork on the Farm, with 80 per cent accuracy.

DA 14. The student shall describe in writing how to build a fence according to Shopwork on the Farm, to the satisfaction of the instructor.

EE 15. Given a concrete floor, the student shall explain in writing how to maintain it according to Shopwork on the Farm, with 80 per cent accuracy.

DA 16. Given a tractor, a gang mower, a plow tiller, a scraper, a fertilizer spreader, and a truck, the student shall operate them according to the operator's manuals.

EE 17. The student, given 10 basic hand tools, shall demonstrate how to use them according to the manufacturer's recommendations.

DA 18. The student shall be able to explain in writing how to maintain a given kind of irrigation system according to the manufacturer's specifications, with 80 per cent accuracy.

EE 19. The student shall apply himself to both written and oral orders given by the instructor. The orders must be carried out to the satisfaction of the instructor.

DA 20. The student shall be required to engage in keeping simple records according to The Nursery Worker, Part II, with 80 per cent accuracy.

EE 21. Given 50 trees common to Illinois, the student shall be able to identify them from pictures, in writing, with 80 per cent accuracy.

EE 22. Given 50 shrubs common to Illinois, the student shall be able to identify them from pictures, in writing, with 80 per cent accuracy.

EE 23. Given 50 kinds of flowers commonly grown in Illinois, the student shall be able to identify them from pictures, in writing, with 80 per cent accuracy.

DA 24. The student shall demonstrate how to repair and paint a bench surface area according to Shopwork on the Farm, with 80 per cent accuracy.

DA 25. The student will prepare a list of 30 items and hand them in, in writing, that will help him get along better with customers, employers, and fellow workers. This is to meet the satisfaction of the instructor. The list is to be based on the reference Human Relations in Business.

DA 26. The student shall be able to explain in writing how to dispose of picked up paper and rubbisn until all areas are clean and neat.

DA 27. Given a welding exercise, the student shall properly complete the exercise according to the text Shopwork on the Farm, with 80 per cent accuracy.

DA 28. Given directions and product information, the student will read them aloud before the teacher, and to the satisfaction of the instructor.

DA 29. The student will engage in writing out orders, reports, and cards, so that they are 90 per cent complete.

DA 30. The student, given a landscape plan, shall be able to list in writing, plant materials to be used in their respective areas according to Landscaping Your Home, to the satisfaction of the instructor.

E. Nursery Operation and Management

Nursery Worker

EE 1. Given 50 trees commonly used in landscaping in Illinois, the student shall be able to identify them from pictures, in writing, with 80 per cent accuracy.

EE 2. Given 50 shrubs commonly used in landscaping in Illinois, the student shall be able to identify them from pictures, in writing, with 80 per cent accuracy.

DA 3. Given a landscape plan, the student shall select plant materials for the plan according to the reference Landscaping Your Home, and submit them in writing, to the satisfaction of the instructor.

EE 4. The student shall be able to plant 10 tree or shrub seedlings commonly used in landscaping in Illinois, according to the reference Landscaping Your Home, with 80 per cent accuracy.

EE 5. The student shall be able to propagate 10 plants by either budding, grafting, layerage, or division, according to Plant Propagation, with 80 per cent survival.

EE 6. The student shall be able to take and propagate 10 cuttings of plants commonly used in landscaping in Illinois, according to Plant Propagation with 80 per cent survival.

EE 7. Given 10 rooted cuttings, the student shall be able to transplant them into containers or the field, with 80 per cent survival.

EE 8. The student shall be able to prepare a rooting medium according to Plant Propagation, with 80 per cent accuracy.

EE 9. The student shall be able to care for young plants commonly used in landscaping in Illinois, based on the reference Landscaping Your Home, to the satisfaction of the instructor.

EE 10. The student shall be able to care for stock plants according to the reference The Nursery Worker, Part II, to the satisfaction of the instructor.

EE 11. The student shall be able to prepare a plant growing media according to Basic Gardening Illustrated, with 80 per cent accuracy.

EE 12. The student shall be able to apply fertilizer to the growing media based on the manufacturer's label.

EE 13. The student shall be able to water plants for a period of one month, with the plants remaining in a vigorous state of growth.

EE 14. The student shall be able to apply spray materials to control pests according to the label.

DA 15. The student shall be able to explain how to regulate growth through use of chemicals according to Ball Red Book, in writing, with 80 per cent accuracy.

EE 16. Given a tree commonly used in landscaping in Illinois, the student shall plant it according to Landscaping Your Home, to the satisfaction of the instructor.

EE 17. Given a shrub commonly used in landscaping in Illinois, the student shall plant it according to Landscaping Your Home, to the satisfaction of the instructor.

EE 18. The student, given 5 plants shall be able to remove dead blossoms and bulb tops according to Ball Red Book, to the satisfaction of the instructor.

EE 19. Given a shrub commonly used in landscaping in Illinois, the student shall be able to ball and wrap it according to the V.A.S. Slidefilm Balling and Burlapping Trees and Shrubs, to the satisfaction of the instructor.

EE 20. Given a shrub commonly used in landscaping in Illinois, the student shall prune it, according to Circular #1033 Pruning Evergreens and Deciduous Trees and Shrubs, to the satisfaction of the instructor.

EE 21. Given a tree commonly used in landscaping in Illinois, the student shall prune it, according to Circular #1033 Pruning Evergreens and Deciduous Trees and Shrubs, to the satisfaction of the instructor.

EE 22. Given a sample of soil, the student shall be able to determine the need for soil conditioners and make recommendations in writing, with 80 per cent accuracy.

EE 23. Given a sample of soil, the student shall test it for pH according to the Urbana Laboratories Soil Test Chart, with 90 per cent accuracy.

EE 24. Given a soil test result, the student shall make fertilizer and lime recommendations, in writing, according to the Urbana Laboratories Soil Test Chart, as needed with 90 per cent accuracy.

EE 25. Given 10 basic hand tools used in landscaping, the student shall demonstrate how to use them according to the manufacturer's recommendations.

EE 26. Given 5 pieces of small power equipment, the student shall operate them according to the manufacturer's recommendations.

DA 27. The student shall operate a tractor according to the operator's manual and to the satisfaction of the instructor.

DA 28. The student shall operate a truck according to the operator's manual and to the satisfaction of the instructor.

DA 29. Given 10 plants commonly used in landscaping in Illinois, the student shall grade them according to size and quality, with 80 per cent accuracy.

DA 30. The student shall be able to tell in writing how to market plants and materials commonly used in landscaping in Illinois, according to the reference The Nursery Worker, Part II, with 80 per cent accuracy.

Garden Center Salesman

EE 1. Given 100 common house and garden plants, the student will identify them in writing from pictures, with 80 per cent accuracy.

DA 2. The student will select 10 plants and hand them in, in writing, that are from the V.A.S. Slidefilm #610, #611, or #612 Foliage Plant Identification Parts I, II, III, with 80 per cent accuracy.

EE 3. Given a hand or power tool, the student will demonstrate how to sell the item according to the reference Selling and Salesmanship, to the satisfaction of the instructor.

EE 4. Given a bag of lawn fertilizer, the student will demonstrate how to sell the item according to the reference Selling and Salesmanship, to the satisfaction of the instructor.

DA 5. Given a bag of some type of soil conditioner, the student will demonstrate how to sell the item according to Selling and Salesmanship, to the satisfaction of the instructor.

EE 6. Given a pesticide, a student will demonstrate how to sell the item according to Selling and Salesmanship, to the satisfaction of the instructor.

EE 7. Given a packet of garden seeds, the student will demonstrate how to sell the item according to the reference Selling and Salesmanship, to the satisfaction of the instructor.

EE 8. Given a house plant, the student will demonstrate how to sell the item according to

Selling and Salesmanship, to the satisfaction of the instructor.

EE 9. Given a tulip bulb, the student will demonstrate how to sell the item according to Selling and Salesmanship, to the satisfaction of the instructor.

EE 10. The student shall be able to demonstrate by example how to take a sales order in person and by phone according to the reference Selling and Salesmanship, with 80 per cent accuracy.

EE 11. The student shall demonstrate how to set up a sales display according to the reference Advertising and Promotion, to the satisfaction of the instructor.

EE 12. The student shall be able to explain how to advise customers in writing on two common gardening problems according to Circular #1091 Illinois Vegetable Garden Guide, with 80 per cent accuracy.

DA 13. The student shall be able to list the five most popular house plants based on a current market demand, with 80 per cent accuracy.

DA 14. The student shall be able to demonstrate how to recondition a type of cut flower according to the reference A Teacher's Guide to Flower Arrangement, with 80 per cent accuracy.

DA 15. The student shall be able to design a simple window display according to the reference Advertising and Promotion, to the satisfaction of the instructor.

DA 16. The student shall be able to demonstrate how to cut two different kinds of flowers according to the V.A.S. Unit # 5009 Arranging Flowers in Vases and Bowls, with 80 per cent accuracy.

DA 17. The student shall be able to demonstrate how to market a plant according to the reference The Nursery Worker, Part II, to the satisfaction of the instructor.

EE 18. The student shall be able to describe in writing how to take inventory according to the reference The Nursery Worker, Part II, with 80 per cent accuracy.

DA 19. The student shall be able to demonstrate by example how to grade five plants according to size and quality, according to The Nursery Worker, Part II, with 80 per cent accuracy.

DA 20. The student will be required to engage in keeping simple records (time, work schedule, equipment rental and maintenance record, inventory of plant materials and equipment) while working in a garden center and hand them in, in writing. These must meet the criterion according to The Nursery Worker, Part II.

DA 21. The student will prepare a simple budget meeting a minimum of 80 per cent of the criterion established by The Nursery Worker, Part II.

DA 22. The student will prepare records of invoices, post bills, and file, meeting a minimum of 80 per cent of the criterion established by The Nursery Worker, Part II.

DA 23. The student will prepare a summary audit of the budget meeting a minimum of 80 per cent of the criterion established by The Nursery Worker, Part II.

DA 24. The student will prepare a preliminary order of garden center supplies for a full year based on the previous years records. The budget must be done according to The Nursery Worker, Part II to the satisfaction of the instructor.

EE 25. The student will be required to role play the meeting of customers, answering questions and complaints according to Human Relations in Business, to the satisfaction of the instructor.

EE 26. The student will apply himself to both oral and written orders given by the instructor, and carry out the orders to the satisfaction of the instructor.

EE 27. Given directions and product information, the student will read them aloud before the teacher and to the satisfaction of the instructor.

DA 28. The student will engage in writing out customer orders, sales reports, and cards according to The Nursery Worker, Part II, with 80 per cent accuracy.

EE 29. The student will role play the taking of sales orders over the phone to the satisfaction of the instructor.

EE 30. The student will prepare a list of thirty items, in writing, that will help him get along better with customers, employers, and fellow workers. This is to meet the satisfaction of the instructor. The list will be based on Human Relations in Business.

F. Turf Management

Turf Worker

EE 1. The student shall list, in writing, 10 types of turf grasses commonly used in Illinois, according to Circular #1066 Lawn Establishment, with 80 per cent accuracy.

EE 2. Given 10 turf grass specimens commonly used in Illinois, the student will select the proper turf sample for a given purpose according to Circular #1066 Lawn Establishment, with 80 per cent accuracy.

DA 3. Given a turf disease commonly found in Illinois, the student will be able to give advice, in writing, according to the publication NC-12 Lawn Diseases of the Midwest, with 80 per cent accuracy.

EE 4. Given a grass seed variety commonly used in Illinois, the student will be able to properly stratify and treat the seed according to The Nursery Worker, Part II, with 80 per cent accuracy.

EE 5. Given a turf grass seed variety commonly used in Illinois, the student will demonstrate how to sow the turf grass seed according to the V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 6. Given a 10' x 10' area of ground, the student will properly prepare the grass seedbed according to the V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 7. Given an existing turf plot, the student will demonstrate how to apply fertilizer according to Circular #1082 Illinois Lawn Care and Establishment, to the satisfaction of the instructor.

EE 8. Given an existing turf plot, the student will demonstrate how to water and determine the proper amount to apply according to Circular #1082 Illinois Lawn Care and Establishment, with 80 per cent accuracy.

EE 9. Given a turf plot, the student will demonstrate spraying the plot to control a specific turf pest based on the label recommendations.

DA 10. Given a turf plot, the student will demonstrate how to apply growth regulant chemicals based on the manufacturer's recommendations, to the satisfaction of the instructor.

EE 11. Given a plot of ground, the student will demonstrate how to properly grade and level the site according to the V.A.S. Unit #5008 Establishing a Lawn, to the satisfaction of the instructor.

EE 12. Given a turf plot, the student will add soil conditioners as needed according to Basic Gardening Illustrated.

EE 13. Given a turf plot, the student will identify all the broad leaf weeds in the plot, according to the slidefilm #650 Lawn Weeds-Identification and Control, with 80 per cent accuracy.

EE 14. Given a soil sample, the student will be able to test the sample for pH, phosphorus, and potassium according to the Urbana Laboratories Soil Test Charts, with 80 per cent accuracy.

EE 15. Given a soil sample test result, the student will determine the proper amount of lime and fertilizer to apply on a one acre plot; write out the recommendations, and hand them in, with 80 per cent accuracy.

DA 16. Given a diseased turf plot, the student will be able to identify the disease based on the publication NC-12 Lawn Diseases of the Midwest, with 80 per cent accuracy.

DA 17. After the student has diagnosed a turf disease, he will be able to give the control measures, in writing, according to the slidefilm #640 Lawn Weeds-Identification and Control, to the satisfaction of the instructor.

EE 18. Given a turf plot, the student will apply insecticides, fungicides, and rodenticides as needed, according to the manufacturer's recommendation, to the satisfaction of the instructor.

EE 19. Given 10 lawn weed grasses common to the state of Illinois, the student will be able to identify them according to the slidefilm #650 Lawn Weeds-Identification and Control, with 80 per cent accuracy.

EE 20. Given samples of rolled sod, the student will lay the sod so it will look neat and survive, to the satisfaction of the instructor.

EE 21. Given a turf plot, the student will demonstrate how to aerate the lawn and remove thatch according to Circular #1082 Illinois Lawn Care and Establishment.

DA 22. Given a basic customer lawn weed problem, the student will select weedicides and herbicides to correct the problem according to the V.A.S. slidefilm #650 Lawn Weeds-Identification and Control, to the satisfaction of the instructor.

EE 23. Given a lawn herbicide, the student will apply the herbicide according to the label, to the satisfaction of the instructor.

EE 24. Given 5 basic hand tools, the student will use and condition them according to the manufacturer's specifications, to the satisfaction of the instructor.

DA 25. Given a non-functioning small engine, the student will trouble-shoot the problem and get the engine running according to the reference Small Engines, Volume I.

DA 26. Given a piece of small power equipment used on a golf course and home lawns, the student will operate, adjust, maintain and service the equipment based on the Operator's Manual, to the satisfaction of the instructor.

EE 27. Given a turf sprayer, the student will properly adjust the sprayer according to the manufacturer's specifications, with 80 per cent accuracy.

EE 28. Given a fertilizer spreader, the student will explain how to properly adjust the fertilizer spreader according to the manufacturer's specifications, with 80 per cent accuracy.

DA 29. Given turf trucks, tractors, or other equipment, the student will operate and maintain the equipment based on the Operator's Manual, to the satisfaction of the instructor.

EE 30. The student will prepare a list of 30 items in writing that will help him get along better with customers, employers, and fellow workers. This is to be based on the reference Human Relations in Business and is to meet the satisfaction of the instructor.

G. Ornamental Horticulture, Other

Horticulture Maintenance Mechanic

EE 1. Given an electrical schematic, the student will be able to wire up the exercise so it is functional according to the book Shopwork on the Farm, and meets the satisfaction of the instructor.

EE 2. Given a plumbing exercise, the student will complete the exercise and check the plumbing to see that it is functional according to the book Shopwork on the Farm, and meets the satisfaction of the instructor.

EE 3. Given a weed working exercise, the student will be able to complete the exercise according to the plans and to the satisfaction of the instructor.

DA 4. Given a concrete block laying exercise, the student will set up a wall according to the book Shopwork on the Farm, and to the satisfaction of the instructor.

DA 5. Given a greenhouse ventilating system, the student will adjust and service the electric motor according to the book Shopwork on the Farm, to the satisfaction of the instructor.

DA 6. Given a gas heating unit, the student will demonstrate how to light and adjust the heating unit according to the manufacturer's specifications.

DA 7. Given an automatic watering system, the student will set the timer and adjust watering nozzles according to the manufacturer's recommendations, to the satisfaction of the instructor.

EE 8. Given ten basic hand tools, the student will be able to sharpen, repair, and maintain them according to the manufacturer's specifications.

EE 9. Given an Operator's Manual, the student will complete an exercise in writing on engine specifications, lubrication frequency, periodic adjustments, and other regular maintenance requirements. The student will complete this with 90 per cent accuracy.

DA 10. Given a new lawn mower, the student will ready the equipment for operation, assemble, and set up attachments according to the manufacturer's specifications.

EE 11. Given an arc welding exercise, the student will weld together two pieces of 1/4 inch metal that must withstand the brake test.

EE 12. Given an oxyacetylene cutting torch, the student will cut 1/4 inch metal to the satisfaction of the instructor.

EE 13. Given an oxyacetylene welding exercise, the student will braze together two pieces of 1/8 inch metal that must withstand the brake test.

EE 14. Given a lawn mower, the student will disassemble it to gain access, remove and replace defective parts, reassemble, and operate equipment to check work. This will be done to manufacturer's specifications.

EE 15. Given a lawn mower engine, the student will disassemble, take specifications, replace worn parts, clean parts, reassemble, start engine and adjust for proper operation. This will be done to the manufacturer's specifications.

EE 16. Given the following equipment, a student will do adjustments, maintenance, and service:

lawn mower	renovator	chain saw
sweeper	rototiller	spray equipment
edger	electric hedge trimmer	compost grinder
aerator		soil shredder
sod cutter		

This will be done to the manufacturer's specifications.

EE 17. The student will maintain sprayer and fertilizer spreading equipment according to the manufacturer's specifications.

DA 18. The student will straighten, grind, polish, paint and buff equipment that has had to have body work done. This will be done according to the book Shopwork on the Farm, and to the satisfaction of the instructor.

EE 19. Given ten different lubrication oils, the student will select the one necessary for the equipment according to the manufacturer's specifications.

EE 20. Given a flat tire, the student will repair the tire, inflate, and check the tire for defects according to the manufacturer's specifications.

DA 21. Given a hydraulic greens mower, the student will explain how the system works according to the Operator's Manual and to the satisfaction of the instructor.

EE 22. Given the following, the student will sharpen the tools according to the manufacturer's spccification or the book Shopwork on the Farm.

hedge trimmer	grafting knife
pruning shears	shovel
pruning loppers	hoe
lawn mower blade	axe
drill bits	chain saw

DA 23. Given remote controls for irrigation equipment, the student will establish the time and length of time to irrigate a turf green. This will be done according to weather conditioning, soil type, type of green and to the satisfaction of the instructor.

EE 24. Given a small engine, a student will do a tune-up job on the engine and have it running according to the manufacturer's specification.

EE 25. Given a tractor, the student will be able to do routine maintenance and repairs according to the manufacturer's specifications.

DA 26. Given a tractor, the student will be able to adjust the clutch and brakes according to the manufacturer's specifications.

EE 27. Given a tractor, the student will check the radiator antifreeze and adjust the antifreeze so that it withstands minus twenty degree weather. This will be done according to the antifreeze product label.

EE 28. Given a tractor, the student will clean, check fluid level, and adjust fluid level according to the Operator's Manual.

EE 29. The student will apply himself to both written and oral orders given by the instructor. The orders must be carried out to the satisfaction of the instructor.

DA 30. The student will engage in filling out repair bills, figuring parts, labor, taxes and service charges to the satisfaction of the instructor.

EE 31. The student will prepare a list in writing of thirty items that will help him get along with customers, employers, and fellow workers. This is to be based on the reference Human Relations in Business and is to meet the satisfaction of the instructor.

CORE COURSE OUTLINE FOR ORNAMENTAL HORTICULTURE

Course Outline	Reference Code	Reference
V. Ornamental Horticulture		
i. Orientation and Guidance		
1. Becoming familiar with horticulture programs in area vocational schools	TR	Illinois Board of Vocational Education and Rehabilitation Annual Directory-Illinois Association of Vocational Agriculture Teachers (1)
2. Becoming familiar with horticulture programs in community colleges	SR	Community College Catalogues
3. Understanding opportunities in horticulture in state universities	SR	University Catalogues
4. Planning how to reach goals in horticultural business	SR	Ohio State University Marketing Agricultural Products, Unit #11 (2)
ii. Plant Identification		
1. Woody Plants	SR	Ohio State University Shrubs for Landscaping (3)
	SR	Ohio State University Trees for Landscaping (4)
	SR	Watts, May Theilgaard Master Tree Finder (5)
	SR	V.A.S. Filmstrip Recognizing Medium Size Shrubs (48 av.)
	SR	V.A.S. Filmstrip Recognizing Large Shrubs and Small Trees (49 av.)

KEY: TR-TEACHER REFERENCE
SR-STUDENT REFERENCE

Course Outline	Reference Code	Reference
	SR	V.A.S. Filmstrip Recognizing Small Shrubs (50 av.)
2. Herbaceous Plants	TR	Kromdyk, G. 200 House Plants in Color (6)
	TR	Coleman, L. Jane Foliage Plants for Modern Living (7)
	SR	V.A.S. Filmstrip Garden Flowers, Annuals Part I (45 av.)
	SR	V.A.S. Filmstrip Garden Flowers, Annuals Part II (46 av.)
3. Greenhouse Plants	SR	V.A.S. Filmstrip Foliage Plant Identification, Part I (39 av.)
	SR	V.A.S. Filmstrip Foliage Plant Identification, Part II (40 av.)
	SR	V.A.S. Filmstrip Foliage Plant Identification, Part III (41 av.)
iii. Plant Propagation	SR	Ohio State University The Nursery Worker, Part II (11)
	TR	Mahlstide, John P. and Haber, Ernest S. Plant Propagation (12)
1. Sexual Propagation of Plants		
a. Collecting seeds	SR	Hartman, Hudson T. and Kester, Dale E. Plant Propagation-Principles and Practices, Ch. 5 (8)
b. Treating Seeds	SR	(8) Ch. 7
c. Germinating Seeds	SR	(8) Ch. 7
	SR	V.A.S. Unit Buying Bedding Plants (9)
d. Understanding factors influencing success in propagation by seeds	SR	(8) Ch. 8
2. Asexual Propagation of Plants		

Course Outline	Reference Code	Reference
a. Producing plants from bulbs and related structures	SR	V.A.S. Unit Producing Plants by Asexual Propagation (10)
b. Producing plants from cuttings	SR	(10) (11) Part II
c. Producing plants by layerage	SR	(10) (11) Part II
d. Budding and grafting as methods of plant propagation	SR	(10) (11) Part II
A. Arboriculture	SR	(11)
1. Care of Ornamental Trees and Shrubs		
a. Fertilizing trees and shrubs	SR	V.A.S. Unit Fertilizing and Watering Shade and Ornamental Trees (29)
	TR	Murphy, Richard C. and Meyer, William E. The Care and Feeding of Trees (30)
b. Pruning and training trees and shrubs	SR	V.A.S. Unit Pruning Shade Trees (32)
	TR	Hudson, Roy L. Pruning Handbook-A Sunset Book (31)
c. Controlling insects and diseases	SR	V.A.S. Unit Tree and Shrub Insects and Their Control (35)
	TR	Pirone, P. R. Tree Maintenance (28)
d. Using general maintenance practices	SR	(11) Part II (28) Part I
2. Preparing to Plant Trees and Shrubs		
a. Selecting trees and shrubs	SR	V.A.S. Unit Selecting Trees for Home Planning (33)

Course Outline	Reference Code	Reference
b. Prepaing the soil	TR	(28)
	SR	V.A.S. Filmstrip Landscaping Homestead "4" (55 av.)
3. Planting and Transplanting Trees and Shrubs	SR	(11) Part II
a. Balling and Burlapping trees and shrubs	SR	V.A.S. Unit Transplanting Shade Trees (34)
	SR	V.A.S. Filmstrip Balling and Burlapping Trees and Shrubs (38 av.)
b. Moving trees and shrubs	SR	(34)
c. Planting and transplanting deciduous trees and shrubs	SR	(34)
d. Planting and transplanting evergreens	SR	(34)
B. Floriculture		
1. Flowers for Holidays		
a. Understanding the importance of holidays to the florist industry	SR	Nelson, Kennard Flower and Plant Production in the Greenhouse Chapter 1 (23)
b. Becoming familiar with chrysanthemum production	SR	(23) Chapter 7
c. Becoming familiar with poinsettia production	SR	V.A.S. Unit Producing Poinsettias Commercially (25)
d. Becoming familiar with production of Easter Lilies	SR	V.A.S. Unit Growing Lilies (26)
2. Floral Design		
a. Constructing holiday flower arrangements	TR	Fox, Raymond T. A Teachers Guide to Flower Arrangement (24)
	SR	V.A.S. Unit Arranging Flowers in Vases and Bowls (27)

Course Outline	Reference Code	Reference
b. Making corsages	SR	California State Polytechnic College Filmstrip Flowers to Wear Part I (31)
	SR	California State Polytechnic College Filmstrip Flowers to Wear Part II (32)
	SR	California State Polytechnic College Filmstrip Flowers to Wear Part III (33)
c. Designing flowers for special occasions	TR	(24)
	SR	(27)
C. Greenhouse Operation and Management		
1. Greenhouse Environment		
a. Controlling light, temperature, and moisture (water, humidity)	SR	(23)
	SR	George J. Ball, Inc. The Ball Red Book (38)
b. Ventilating the greenhouse	SR	(38)
c. Identifying and controlling insects in the greenhouse	SR	(38)
d. Identifying and controlling disease in the greenhouse	SR	(23)
2. Greenhouse Practice	TR	Ohio State University The Greenhouse Worker (39)
a. Securing stock plants, cuttings, seeds, bulbs, and materials	SR	(38)
b. Transplanting, bedding, and potting	SR	(38)
c. Harvesting, grading, and preparing for market	SR	(23)
d. Pinching, disbudding, and tying	SR	(23)
e. Caring for stock plants and bulbs	SR	(23)

Course Outline	Reference Code	Reference
D. Landscaping		
1. The Landscape Plan		
a. Determining landscape needs	SR	Nelson, Williams R. Landscaping Your Home Chapter 1 (13)
b. Understanding principles of design	SR	(13) Chapter 6
c. Analyzing a site	SR	(13) Chapter 3
d. Developing a landscape plan	SR	(13) Chapter 2
e. Beautifying the home grounds and lawn	SR	(13) Chapter 13
2. Plants in the Landscape Plan		
a. Fitting trees to the plan	SR	(13) Chapter 7
b. Fitting shrubs to the plan	SR	(13) Chapter 8
c. Fitting flowers to the plan	SR	(13) Chapter 9
d. Planting ornamentals	SR	(13) Chapter 12
3. Landscape Structures		
a. Choosing landscape structures	SR	(13) Chapter 4
b. Selecting construction materials	SR	(13) Chapter 5
c. Locating and constructing driveways, walks, terraces, and pools	SR	(13) Chapter 2
E. Nursery Operation and Management		

Course Outline	Reference Code	Reference
1. Soils in the Nursery	SR	(11) Part I
a. Selecting a nursery site	SR	(11) Part I
b. Testing the soil	TR	Brown, Harvard Nursery Management (40)
	SR	V.A.S. Unit pH Test for Soil Acidity (36)
c. Maintaining soils	SR	The Urbana Laboratories Soil Test Color Chart-Directions and Interpretations (42)
2. Nursery Practice	TR	(11) Part I (40)
a. Lining out stocks	SR	(11)
b. Planting and transplanting nursery plants	TR	(40)
c. Pruning and training nursery plants	SR	(11) Part I
d. Growing stock in containers	TR	(40)
	SR	(11) Part II
	TR	(40)
	TR	(40)
3. Care of Nursery Plants		
a. Fertilizing and watering nursery plants	TR	(40) (39)
b. Cultivating nursery plants	TR	Lane Magazine and Book Company Basic Gardening Illustrated-A Sunset Book (41)
c. Mulching nursery plants	TR	(41)
d. Identifying and controlling insects and diseases	SR	(11) Part II
	TR	(40)
e. Controlling weeds in the nursery	SR	(11) Part II
	TR	(41)
E. Turf Management	TR	
	TR	Musser, H. Burton Turf Management (17)
		Pennsylvania State University Turf Grass Maintenance and Establishment-A Teachers Manual (21)
	TR	Ohio State University Establishment and Maintenance of Lawns (50)

Course Outline	Reference Code	Reference
1. Establishing Lawns and Turf	SR	Turgeon, A. J. and Mazur, A. R. Lawn Establishment (18)
a. Identifying and selecting grasses	SR	V.A.S. Unit Establishing a Lawn (16)
b. Making soil tests to determine nutrient needs	SR	(18)
c. Fertilizing and liming a new lawn	SR	(18)
d. Preparing the soil for a lawn	SR	(16)
e. Seeding and mulching a new lawn	SR	(16) (18)
f. Watering a new lawn	SR	(18)
2. Maintaining Lawns and Turf		
a. Fertilizing an old lawn	SR	University of Illinois Illinois Lawn Care and Establishment (19)
b. Watering an old lawn	SR	(19)
c. Weed identification	SR	V.A.S. Filmstrip Lawn Weeds Identification and Control (4 av.)
d. Lawn diseases	SR	Frolik, E. F. and Adams, J. L. Lawn Diseases in the Midwest (20)
G. Ornamental Horticulture, Other		
Horticulture Mechanics	SR	Jones, Mack Shopwork on the Farm (43)
1. Shop Orientation		
a. Planning and preparing shop projects	SR	(43) Chapter 1
b. Understanding safety practices and shop procedures	SR	(43) Chapter 1
2. Electricity	SR	(43) Chapter 19

Course Outline	Reference Code	Reference
a. Electrical wiring	SR	(43)
b. Selecting and maintaining electric motors	SR	(43)
c. Selecting and using electrical controls	SR	(43)
3. Structures		
a. Using concrete	SR	(43) Chapter 10
b. Glazing and painting	SR	(43) Chapter 6
c. Plumbing	SR	(43) Chapter 15
d. Drawing, sketching, and interpreting plans	SR	(43) Chapter 2
e. Constructing horticultural equipment (wood)	SR	(43) Chapter 3
4. Small Engines		
a. Servicing small engines	SR	American Association for Vocational Instructional Materials Small Engines, Volume I (44)
b. Starting and operating engines	SR	(44)
c. Storing engines	SR	(44)
5. Horticulture Business		
a. Succeeding on the job in horticulture	SR	Ohio State University Selling and Salesmanship Unit #5 (45)
(1) Becoming a salesman in horticultural business	SR	Ohio State University Human Relations in Business Unit #4 (46)
(2) Understanding the types of customers	SR	(11) Part II
(3) Understanding the fundamentals of presenting a product	SR	(2) (11) Part II

Course Outline	Reference Code	Reference
(4) Keeping inventories up to date	SR SR	(11) Part II Ohio State University Office Procedures and Records (47)
b. Sales and Services in Horticulture		
(1) Marking and tagging products	SR	(2)
(2) Displaying horticultural plants and products	SR SR	(11) Part II Ohio State University Advertising and Promotion Unit #8 (48)
(3) Advertising and promoting horticultural products and services	SR	(48) (11) Part II
(4) Selling plants and products	SR	(45)

EXEMPLARY TEACHING PLANS

V. Ornamental Horticulture

A. Plant Propagation

UNIT: 1. Asexual Plant Propagation

PROBLEM AREA: a. Producing Plants from Cuttings

TEACHING PLAN

I. INTRODUCTION: Cuttings method of propagation is the only way to reproduce certain plants. Plants produced from cuttings assure you plants with the same characteristics as the parent. This method of propagation is faster than growing from seed and therefore is a faster money maker.

II. STUDENT PERFORMANCE OBJECTIVES:

A. Given stock plants of the following, a student shall take 5 cuttings 3-4 inches long from each and get 80 per cent rooted.

1. Geranium
2. Chrysanthemum
3. Poinsettia
4. Fuchsia
5. Lantana
6. Wandering Jew
7. Begonia
8. Impatiens

B. The student shall do the following propagation procedure with the cutting taken in step #1.

1. Dip the bottom one-half inch of the cutting in a hormone powder to stimulate rooting.

2. Insert the base of the cutting to a depth of one and one-half to two inches in the rooting media.

3. Water immediately. Water daily or as needed.

4. Set in a warm (65°) but shaded place.

5. Pot cuttings when roots are about one-half inch long.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Asexual propagation defined

1. The production of a new plant from a growing part of a parent plant.

B. Four types of stem cuttings

1. Hardwood cuttings (of deciduous species)

a. Take from wood of previous season's growth
b. Cuttings 4-12 inches long including 2 leaf nodes.

2. Semihardwood cuttings

a. Usually broad-leaved evergreen species are used.
b. Cuttings are taken 3-6 inches long with upper leaves on, lower leaves removed.
c. Base cut is made on a slant just below the node.
d. Use "Rootone".
e. Root in condition of a high humidity.

3. Softwood

a. Cuttings taken from current season's growth of deciduous and evergreen species during summer.
b. Leaves are left attached.
c. Use growth promoting substances.
d. Root best under conditions of high humidity.

4. Herbaceous

a. Take cuttings 3-4 inches long from strongest, healthy stems.
b. Dip the bottom one-half inch of the cutting in a hormone powder.
c. Insert the base of the cutting to a depth of one and one-half to two inches in the rooting media.
d. Water immediately and thoroughly. Water daily or as needed.
e. Place in warm (65°) but shaded place.
f. Pot cuttings when roots are about one-half inch long.

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Students will take five cuttings from each of the following plants using the procedure used in class:

1. Geranium
2. Chrysanthemum
3. Poinsettia
4. Fuschia
5. Lantana
6. Wandering Jew
7. Begonia
8. Impatiens

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Stock plants of the above mentioned plants, plants can be obtained from local greenhouses or even house plants students have at home.

B. Jiffy mix or a mix of:

1 part of peat

1 part sterile sand, perlite, or vermiculite or straight sand can be used.

C. Rooting hormone powder (maybe optional)

D. Heating cable with thermostat or place to keep rooting media warm (65°)

E. 600 plastic, clay, pots, or used milk cartons for 15 students.

VI. STUDENT REFERENCES:

Producing Plants by Asexual Propagation
V.A.S. Unit #5006

V. ORNAMENTAL HORTICULTURE

B. Arboriculture

UNIT: 1. Care of Ornamental Trees and Shrubs

PROBLEM AREA: a. Fertilizing Trees and Shrubs

TEACHING PLAN

I. INTRODUCTION: Proper fertilizing will stimulate trees to grow more rapidly. The leaves of many trees become darker green following fertilization and this makes them more conspicuous and attractive. A vigorously growing tree is less susceptible to certain diseases and insect pests than is a less vigorous tree.

II. STUDENT PERFORMANCE OBJECTIVES:

A. The student will measure a planting bed to mathematically determine the area and hand it in, in writing, with 80 per cent accuracy.

B. The student will calculate and apply fertilizer to a landscape planting based on soil test results, and hand them in, in writing, having 80 per cent accuracy.

C. The student will list and explain the functions of fertilizer according to V.A.S. Unit #5003, with 80 per cent accuracy.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. What is a fertilizer? (V.A.S. #5003-pgs. 203)

1. Nitrogen-promotes vegetative growth.
2. Phosphorus-essential for active root growth.
3. Potassium-involved in changing a plant's food into forms it can use for growth and other functions. It acts as a balancing agent between nitrogen and phosphorus utilization.

B. Should I fertilize? (V.A.S. #5003, pgs. 3-5)

1. If trees have poor growth or pale green leaves, fertilizer may make them grow faster and give them a darker green color. If trees are attacked by canker-causing fungi or borers, fertilizer will make them more vigorous and less subject to these troubles.

2. Determine the rate of annual growth
3. Determine the soil conditions
4. Consider the disadvantages of fertilizing.

C. When should I fertilize and with what? (V.A.S. #5003 pgs. 5-6)

1. Time of application
2. Rate of application

D. How should I fertilize? (V.A.S. #5003, pgs. 6-9)

IV. STUDENT LEARNING ACTIVITIES:

A. Given the length and width of a piece of property, the student will determine the square footage and acreage involved.

B. Once the student has determined area as in step A., he will than calculate the proper amount of fertilizer to apply for trees and shrubs for the determined area.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Fertilizer bag

B. Paper and pencil

VI. STUDENT REFERENCES:

Fertilizing and Watering Shade and Ornamental Trees Urbana, Illinois: Vocational Agriculture Service, Unit #5003

V. Ornamental Horticulture

C. Floriculture

UNIT: 2. Floral Design

PROBLEM AREA: c. Designing Flowers for Special Occasions

TEACHING PLAN

I. INTRODUCTION: Floral design allows for flowers to be enjoyed in the home rather than just out of doors. Jobs are available in floral design in the larger communities. The pay is relative to the talent of the individual and working conditions are excellent.

II. STUDENT PERFORMANCE OBJECTIVES:

A. Given a specific occasion, the student shall select the proper natural or artificial flowers and foliage for the occasion, according to the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls.

B. The student given a variation of plant material, shall be able to design and make up a floral arrangement based on the V.A.S. Unit #5009 Arranging Flowers in Vases and Bowls, to the satisfaction of the instructor.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

How Do I Design A Flower Arrangement

A. There are three main types of arrangements:

1. Line arrangement
2. Mass arrangement
3. Line-mass arrangement

B. Types of arrangements defined.

1. Line arrangements - use relatively few materials. The lineal effect is created with few flowers and branches. Typical line arrangements are crescents, "L" shape, 3-line and 5- to 7-line triangles, vertical or horizontal lines, spiral, and fan shapes.

2. Mass arrangements - these arrangements require a large number of flowers. They are usually oval or triangular in shape and get their effect from a solid placement of color.
3. Line-mass arrangements - the line-mass arrangements combine the lineal effect of line arrangements with the crowded effect of mass arrangements.

C. Planning line arrangements

1. Have a focal point, where the lines converge at the base of the design.
2. Branches of pussy willow, forsythia, apple, cherry, privet, flowering quince or any other simple lineal branches can be used for the lines of the designs.
3. A few flowers, such as daffodils, tulips, iris, roses, peonies, zinnias, asters, chrysanthemums, or carnations can be used as focal point flowers.

D. Refer to the V.A.S. Unit #5009 for a detailed explanation of how the different floral designs are completed.

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Make a simple line arrangement.

B. Have student judge the arrangements of each of the students.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Use plant material that may be in season.

B. Low containers (8) could use plastic cereal bowl, wooden salad bowl, etc. (see local florist).

C. Oasis (8)

D. Pruning shears (8).

VI. STUDENT REFERENCES:

A. Arranging Flowers in Vases and Bowls, V.A.S. Unit #5009.

V. Ornamental Horticulture

D. Greenhouse Operation and Management

UNIT: 1. Greenhouse Environment

PROBLEM AREA: a. Identifying and Controlling Disease in the Greenhouse

TEACHING PLAN

I. INTRODUCTION: Most of the problems that are encountered in plant growth are caused by common and ordinary events of some kind. Disease in the greenhouse can destroy many of the existing plants and therefore be disastrous as far as making any money or even to the point of having a job.

II. STUDENT PERFORMANCE OBJECTIVES:

A. The student, given pictures of common diseases in the greenhouse, shall be able to identify them, in writing, with 80 per cent accuracy.

B. Given five common disease problems in the greenhouse, the student shall determine the method of control for each according to the text Flower and Plant Production, and hand it in, in writing, with 80 per cent accuracy.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Compare the plant trouble with unaffected plants. Look for a pattern. (Ref. 23, pgs. 283-284)

B. Make a list of what has been done during the time the trouble has been suspected. (Ref. 23, pgs. 284-285)

C. Some troubles and some possible causes. (Ref. 23, pgs. 285-299)

1. Short growth
2. Small leaves
3. Chlorosis
4. Small flowers
5. Leaf spots
6. Loss of tip of stem
7. Witting
8. Weak stems
9. Twisted or malformed shoots

D. Diseases can be caused by fungi, bacteria, or viruses. (Ref. 23, pgs. 293-295)

E. Stem and root diseases. (Ref. 23, pgs. 299-302)

F. Leaf and flower diseases. (Ref. 23, pgs. 299-302)

G. Use the best method for getting the control material on the plant at the right time. (Ref. 23, pgs. 302-307)

H. Use pesticides and fungicides carefully, thoroughly, and wisely. (Ref. 23, pgs. 307-311)

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Student shall search thoroughly the schools' plants and plants at home for possible plant disease to be brought and identified by the class.

B. Once plant diseases have been identified the class members must determine the proper method of control for the disease.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Diseased plants from the greenhouses in the community, agriculture department plant, diseased plants of teachers in the school system, diseased plants of students in the high school system or even feeder grade schools.

B. Materials to apply to diseased plants may also be obtained from any of the persons in step number one, once you have determined what you need.

Note: Your Cooperative Extension Agent can also be of great assistance especially if he specializes in horticulture. Other reference people can be people from local garden clubs, 4-H leaders and horticulture businesses.

VI. STUDENT REFERENCES:

Nelson, Kennard. Flower and Plant Production in the Greenhouse. Danville, Illinois: Interstate Printers and Publishers, Inc., 1966.

V. Ornamental Horticulture

E. Landscaping

UNIT: 1. Landscaping

PROBLEM AREA: a. Determining Your Landscaping Needs

TEACHING PLAN

I. INTRODUCTION: The function of landscape architecture is to create and preserve beauty and make the surroundings useful at the same time. The skill of determining landscape needs is highly desirable and often required for entry in a landscape job. Landscaping a home improves the value of the home, extends your living activities into the landscape, allows for more privacy, emphasizes attractive views and blocks out unattractive or objectionable views.

II. STUDENT PERFORMANCE OBJECTIVES:

A. Given a house layout, the student will draw views for both the front and back of the house according to the reference Landscaping Your Home, to the satisfaction of the instructor.

B. Given a landscaping site, the student will inventory the liabilities of the property and its surroundings according to the reference Landscaping Your Home, to the satisfaction of the instructor.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Landscape architects job is to design a plan within the terms of agreement with his client.

B. Successful landscape planning involves three considerations.

1. Consider the lot or site as a cube of space, very much like a room.
2. Study the floor plan, window locations, and primary living areas of your house so that there is a relationship between living and service areas in the house and similar areas out of doors.

3. Consider the landscape design from outside the house as viewed by yourself and others.

C. Inventory family activities

1. Hobbies
2. Type and frequency of entertaining
3. Type of outdoor recreation the family members enjoy

D. Study geographical location of house

1. Climate largely determines the plants you can use.
2. Locate shade trees where they will best shade the house, terrace, and outdoor living areas.

E. Inventory property liabilities

1. Unsightly views of neighboring property
2. Height of surrounding land and houses
3. Grade changer
4. Soil pH, texture, humus content, and drainage

F. Inventory property assets

1. Existing vegetation
2. A distant view
3. Water features as a stream or brook

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. The student can be given a house blue print with the rooms layout and draw in the lines for the views from inside the house.

B. Given a house blueprint with room layout, the student will label outside areas corresponding to the room layout of the house.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. House blue prints and pictures can be obtained from local contractors, carpenters, the Industrial Arts Department, teachers building homes and student's parents.

B. Pencils.

C. Architect rules (optional)

VI. STUDENT REFERENCES:

Nelson, William R., Landscaping Your Home, Urbana, Illinois: Cooperative Extension Service, College of Agriculture, Univeristy of Illinois, 1963.

V. Ornamental Horticulture

F. Nursery Operation and Management

UNIT: 1. Nursery Practice

PROBLEM AREA: a. Growing Stock in Containers

TEACHING PLAN

I. INTRODUCTION: The name of the game in horticulture is being able to reproduce, grow, and sell plants. This is where experience pays off in having some knowledge of plants. Job entry pay is usually much higher for a person who has experience in growing plants rather than one who has not. A student is evaluated on his ability to grow saleable plants in containers.

II. STUDENT PERFORMANCE OBJECTIVES:

A. The student will care for and grow 5 one gallon containers of the following woody plants to the satisfaction of the instructor.

1. Privet
2. Boxwood
3. Myrtle
4. Juniper

B. The student shall correctly label and do weed control on his 5 one gallon containers according to the reference The Nursery Worker Part I, to the satisfaction of the instructor.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

Container-grown stock

A. Plants are grown in cans or similar containers for ease in handling and for future planting in the group.

B. They do not remain in containers as do potted plants or tub specimens.

C. Sizes of containers used commercially include 1, 3, 5, and 15 gallon cans.

D. Examples of container grown stock are Juniper and Boxwood. Plants that can be grown in this manner include nearly all species of conifers and broadleaf evergreen trees and shrubs.

E. Since container stock remains in the nursery longer than some other kinds of plants, it requires more fertilizer and spraying. Watering is a continual problem as is weed control and labeling. Regardless of the size of container, the plant should not remain in it long enough to become "root-bound".

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Student to care for 5 one gallon containers of woody plants.

B. Student can correctly label and weed container grown plants.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Watering hose and watering nozzle

B. Woody labels

C. One gallon cans

Note: Gallon cans for container grown plants can be obtained from a school cafeteria.

VI. STUDENT REFERENCES

The Nursery Worker Part I. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1971.

V. Ornamental Horticulture

G. Turf Management

UNIT: 1. Establishing Lawns and Turf

PROBLEM AREA: a. Fertilizing and Liming a New Lawn

TEACHING PLAN

I. INTRODUCTION: The reason for fertilizing and liming a new lawn is so that it gets off to a good start and we increase the probability that the new lawn establishment will be a success. Jobs related to establishing lawns are available in most communities, especially where new housing is being built. A person can save some of the cost of establishing a lawn by seeding, fertilizing, and watering the lawn himself.

II. STUDENT PERFORMANCE OBJECTIVES:

A. Given an existing turf plot, the student will demonstrate how to apply fertilizer according to the Circular #1082 Illinois Lawn Care and Establishment, to the satisfaction of the instructor.

B. Given soil sample test results, the student will determine the proper amount of lime and fertilizer to apply on a one acre plot; write out the recommendations and hand them in, with 80 per cent accuracy.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

Fertilizing a New Lawn

A. Items to Consider:

1. The plant food elements
2. Fertilizer grades
3. Amount of fertilizer to apply
4. Method of application
5. Fertilizer forms

B. Related Information

1. The plant food elements
All new lawns should have fertilizer applied before seeding. A good weed-free lawn needs plenty of plant food in the soil.

Nitrogen is the plant food that grass needs most because it stimulates rapid growth and dark green leaves. Although it is generally present in small amounts, it leaches out of the soil fairly easy and needs to be replaced.

Phosphourus promotes root growth. Grass needs a well developed root system to support a luxuriant top growth. A deep root system increases the ability of desirable grasses to service midsummer conditions better without frequent watering than will poorly rooted grasses that have to be watered frequently.

Potassium helps to increase vigor, hardiness and disease resistance of lawns. Of the three major plant food elements, potassium is least likely to be lacking.

2. Fertilizer grades
On every bag of fertilizer sold there appears a grade, which is the minimum guaranteed analysis of the major plant nutrients contained in that material. Such a grade might be 5-20-20, which means that the fertilizer contains by weight 5% nitrogen, 20% phosphorous as P_2O_5, and 20% potassium, expressed as K_2O.

3. Amount of fertilizer to apply
When a soil test is made, use the amount and analysis suggested for the specific location. In the absence of a soil test, the following amounts should be adequate:

For common Kentucky bluegrass or a bluegrass mixture, apply 40 to 50 pounds per 1000 square feet of a high phosphate analysis fertilizer, such as 6-24-12, 8-16-16, 6-10-4, 4-12-4, 5-10-5, or similar analysis.

For Merion Kentucky bluegrass use the same amount of 15-15-15, 12-12-12, 10-10-10 or similar analysis.

4. Method of application
The needed fertilizer may be raked into the soil surface for most new lawns. Where soil test shows extreme lack of phosphorus, work the soil deeper.

5. Fertilizer forms
Some form granulated or pelleted fertilizers are hard to get through some lawn spreaders; they may work better in the spinner types of spreaders.

Many brands and formulas of liquid fertilizers and soluble powders are available. These produce no better results than the same quantities of plant nutrients supplied from dry fertilizers. Liquids may be more convenient for you to apply; however, they may be more expensive than dry fertilizer.

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Test soil.

B. Measure lawns and compute fertilizer requirements.

C. Apply fertilizers to lawns with different types of applicators.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Soil sampling tube.

B. Lawn fertilizer spreader.

C. Samples of fertilizer and fertilizer forms.

D. Sample of soil test sheet.

E. Charts.

VI. STUDENT REFERENCES:

Lawn Establishment. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois. 1972. Circular #1066.

V. Ornamental Horticulture

K. Ornamental Horticulture, Other

UNIT: 1. Horticulture Mechanic

PROBLEM AREA: a. Starting Engines

TEACHING PLAN

I. INTRODUCTION: Most operators have more trouble with starting a small engine than they do with any other phase of operation. Jobs are available to good mechanics that can repair and properly operate engines. The individual can save money by being able to get his engine started and keeping it in operating condition.

II. STUDENT PERFORMANCE OBJECTIVES:

A. Given the following equipment, a student will do adjustments, maintenance, and service:

1. Lawn mower
2. Sweeper
3. Edger
4. Renovator
5. Rototiller
6. Electric hedge trimmer
7. Aerator
8. Sod cutter
9. Chain saw
10. Spray equipment
11. Compost grinder
12. Soil shredder

This will be done to the manufacturer's specifications.

B. Given a lawn mower engine, the student will disassemble, take specifications, replace worn parts, clean parts, reassemble, start engine and adjust for proper operation. This will be done to the manufacturer's specifications.

III. OUTLINE OF INSTRUCTIONAL CONTENT:

A. Preparing to Start the Engine
Read the operator's manual first
1. See that it has been serviced properly
2. Move engine outside
3. See that the area is clean
4. See that the engine is level and well balanced
5. Apply brakes if the equipment has them
6. Disengage clutch on all power-driven equipment when possible
7. Adjust carburetor if needed.

B. Starting the Engine

1. Open the fuel shut off valve if your equipment is equipped with one.
2. Close the choke valve or prime the carburetor.
3. Set throttle at position recommended for your engine.
4. Turn ignition switch if engine has one.
5. Crank the engine.
6. Open the choke valve part or all the way when the engine starts
7. Adjust the throttle for warm up.
8. Repeat steps 1 through 4 if the engine does not start.

IV. POSSIBLE STUDENT LEARNING ACTIVITIES:

A. Have students start lawn mower engines following the above procedure.

B. Read operator's manuals.

V. SPECIAL MATERIALS AND EQUIPMENT:

A. Lawn mowers

B. Operator's manuals (from home)

VI. STUDENT REFERENCES:

Small Engines Volume I. Care-Operation-Maintenance-Repair. Athens, Georgia: Engineering Center, American Association for Vocational Materials, 1969.

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Specific References

V. Ornamental Horticulture

1. Annual Directory-Illinois Association of Vocational Agriculture Teachers. State of Illinois-Board of Vocational Education and Rehabilitation, Springfield, Illinois.

   The publication is revised each year and mailed to all vocational agriculture teachers in the State of Illinois. It gives name, address, and section the teacher is in.

2. Marketing Agricultural Products Unit #1. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1971.

   This is similar to the Illinois Vocational Agriculture Service Units in size. It is about 30 pages that states objective unit areas of study and has many good student exercises in it.

3. Shrubs for Landscaping. Columbus, Ohio: Ohio Agriculture Education Curriculum Materials Service, The Ohio State University, 1972.

   Excellent publication that gives simplified identification, culture and use of approximately 25 shrubs used for landscaping. The illustrations of the plant material are top quality.

4. Trees for Landscaping. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1972.

   This is an excellent publication that gives simplified identification, culture, and use of approximately 25 commonly used trees for landscaping.

5. Watts, May Theilgaard. Master Tree Finder. Berkeley, California: Nature Study Guide, 1963.

   Inexpensive pocket sized publication that is used primarily for identification purposes of native trees.

6. Kromdyk, G. 200 House Plants in Color. New York: Herder and Herder, New York, 1967.

   Retails $7.50. This is probably one of the best books to have as a single copy for reference. It has excellent color photos and gives the culture of each plant.

7. Coleman, L. Jane. Foliage Plants for Modern Living. Kalamazoo, Michigan: Merchants Publishing Company, 1974.

   This publication costs approximately $3.00. The 80 page publication has top quality photos for identification. The culture for the plants is given very briefly.

8. Hartman, Hudson T. and Kester, Dale E. Plant Propagation-Principles and Practices. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1959.

   The book covers general aspects of propagation, sexual propagation, asexual propagation, and propagation of selected plants. The book is 560 pages and is very well illustrated.

9. Buying Bedding Plants. Urbana, Illinois: Vocational Agriculture Service, Unit #5010.

   This 20 page unit covers how to start or germinate plants from seed, recommends varieties and tells how to care for bedding plants.

10. Producing Plants by Asexual Propagation. Urbana, Illinois: Vocational Agriculture Service, Unit #5006.

    This 20 page unit covers how to propagate, materials needed, and grafting of plants. It is brief and to the point.

11. The Nursery Worker, Parts I and II. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1971.

    The two-volume set of reference material is a course of study for a nursery worker. They deal with the complete realm of what a nursery worker has to know and do.

12. Mahlstide, John P. and Haber, Ernest S. Plant Propagation. New York: John Wiley and Sons, Inc., 1966.

    The book is 413 pages which covers basic concepts and principles of propagation, sexual propagation, asexual propagation, propagation structures, and propagation of specific plants. It is very well illustrated.

13. Nelson, William R. Landscaping Your Home. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois, 1963.

The 156 page publication is inexpensive and complete. It covers landscaping needs, analyzing site, landscape structures, use of plant material, care of plant material, and lists selected plant material.

14. Landscape Maintenance and Establishment, A Teacher's Manual. University Park, Pennsylvania: The Pennsylvania State University, 1968.

The material covered is of sufficient breadth to cover the objectives of this unit.

15. Landscaping Your Home. Columbus, Ohio: Vocational Agricultural Service, Department of Education, 1964.

This is a 72 page publication that covers developing a landscape plan for the home grounds, landscaping the various areas surrounding the home and care and pruning of ornamental shrubs and shade trees.

16. Establishing a Lawn. Urbana, Illinois: Vocational Agriculture Service, Unit #5008.

The 8 page unit covers soil preparation, grasses to use, seeding practices, care of a new lawn, and establishing a lawn with sod.

17. Musser, H. Burton. Turf Management. New York: McGraw Hill Book Company, 1962.

The 356 page book is a complete turf management reference. It covers production of special-purpose turf, soil, fertilizers, drainage, propagation, maintenance, weed control, disease control, insect control and golf course operation.

18. Turgeon, A. J. and Mayar, A. R. Lawn Establishment. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois, 1972. Circular #1066.

19. Illinois Lawn Care and Establishment. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois. Circular #1082.

20. Frolik, E. F. and Adams, J. L. Lawn Disease in the Midwest. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois, 1966. Circular #NC-12.

21. Turf Grass Maintenance and Establishment-A Teacher's Manual. University Park, Pennsylvania: Department of Agricultural Education, The Pennsylvania State University, 1968.

This manual includes technical data necessary for establishing turf areas by seeding and vegetative plantings.

22. Turf Management. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1973.

The manual's section of turf propagation provides a good source of easily understood information for this unit.

23. Nelson, Kennard, Flower and Plant Production in the Greenhouse. Danville, Illinois: Interstate Printers and Publishers, Inc., 1966.

The 335 page book covers the floriculture industry, structures, environment, soils, reproduction of plants, care of cut flower crops and pot plant crops, plus pests and diseases.

24. Fox, Raymond T. A Teachers Guide to Flower Arrangement. Ithaca, New York: Department of Floriculture and Ornamental Horticulture, New York State College of Agriculture, Cornell University, 1960.

The 40 page guide gives the history, tools, containers, care of flowers and flower arrangement demonstration procedures necessary for teaching this type of unit.

25. Producing Poinsettias Commercially. Urbana, Illinois: Vocational Agriculture Service. Unit #5013.

The 12 page unit covers varieties, culture, propagation, transplanting, scheduling for Christmas, common problems, and preparing plants for sale.

26. Growing Lilies. Urbana, Illinois: Vocational Agriculture Service. Unit #5014.

The 20 page unit covers propagation, timing for Easter sale, and culture.

27. Arranging Flowers in Vases and Bowls. Urbana, Illinois: Vocational Agriculture Service. Unit #5009.

The 20 page unit covers selecting plant material, tools needed, containers, preparing flowers for arrangement, and design.

28. Pirone, P. R. Tree Maintenance. New York: Oxford University Press, 1959.

The 483 page text Part I covers general maintenance practices dealing with soil, transplanting, fertilizers, pruning, cavity treatments, bracing, and suitability of trees for various locations. Part II covers specific abnormalities of trees such as: diagnosing, non-parasitic injuries, insect control, spraying equipment, and tree diseases.

29. Fertilizing and Watering Shade and Ornamental Trees. Urbana, Illinois: Vocational Agriculture Service, Unit #5003.

The 12 page unit covers the why, what, when and how to fertilize and water shade and ornamental trees.

30. Murphy, Richard C. and Meyer, William E. The Care and Feeding of Trees. New York: Crown Publishers, Inc., 1965.

The 164 page book covers planning, planting, soil, fertilizing, pruning, insects and pests, and an array of 10 useful charts.

31. Hudson, Roy L. Pruning Handbook-A Sunset Book. Menlo Park, California: Lane Magazine and Book Company, 1968.

This is a rather complete publication on pruning. The 80 page reference covers the objectives and effects of pruning, tools, do's and don'ts of pruning, plus pruning of shrubs, trees, berries and ornamental vines.

32. Pruning Shade Trees. Urbana, Illinois: Vocational Agriculture Service. Unit #5004.

The 8 page unit covers the why, when and what of pruning. Pruning equipment is also listed.

33. Selecting Trees For Home Planning. Urbana, Illinois: Vocational Agriculture Service. Unit #5001.

This 40 page unit covers what factors you need to consider when buying trees. It also gives information on about 50 different trees for home planting.

34. Transplanting Shade Trees. Urbana, Illinois: Vocational Agriculture Service. Unit #5002.

The 12 page unit tells how to prepare, plant, and protect a tree that is to be transplanted.

35. Tree and Shrub Insects and Their Control. Urbana, Illinois: Vocational Agriculture Service, Unit #5005a.

    The 36 page unit gives facts about insects, a description of pests, and control measures.

36. pH Test for Soil Acidity. Urbana, Illinois: Vocational Agriculture Service. Unit #4002.

37. Pruning Evergreens and Deciduous Trees and Shrubs. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois. Circular #1033.

38. The Ball Red Book. West Chicago, Illinois: George J. Ball, Inc., 1973.

    The 501 page book is recently revised. It covers almost every aspect of flower production in the greenhouse and includes discussion of over 100 individual crops. Cost is approximately $7.00.

39. The Greenhouse Worker. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1974.

40. Brown, Harvard. Nursery Management. San Luis Obispo, California: California State Polytechnic College.

    The 90 page publication tells about the nursery industry, starting an ornamental horticulture program, operating a high school nursery, plus much more.

41. Basic Gardening Illustrated-A Sunset Book. Menlo Park, California: Lane Magazine and Book Company, 1972.

    The 125 page publication is gardening condensed. It has many illustrations and it will cover soil, propagation, planting, watering, pruning, pest control, weeding, tools, and plant specialities.

42. Soil Test Color Chart-Directions and Interpretations. Urbana, Illinois: The Urbana Laboratories.

    The color charts help to interpret the soil test results so that recommendations can be made to correct any deficiencies. They give brief, concise, directions for each soil test.

43. Jones, Mack. Shopwork on the Farm. St. Louis, Missouri: McGraw-Hill Book Company, 1955.

    The 626 page text includes most all areas to be covered in teaching a shop class. Examples of the areas covered are sketching and drawing, woodwork, sharpening and fitting tools, concrete and plumbing, etc.

44. Small Engines, Volume I. Athens, Georgia: Engineering Center, American Association for Vocational Instructional Materials, 1969.

The 158 page publication is one of the best. It has multi-colored illustrations that make it excellent for high school students. It covers all aspects of care and operations of small engines.

45. Selling and Salesmanship, Unit #5. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1971.

One of a series, this 27 page publication gives unit objectives and area of study. It has many excellent student exercises.

46. Human Relations in Business, Unit #4. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1971.

One of a series, this 47 page unit gives objectives and study areas for office procedures. It has many good student exercises included.

48. Advertising and Promotion, Unit #8. Columbus, Ohio: Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 1971.

One of a series, this 52 page unit gives objectives and study areas for advertising. It includes many good student exercises.

49. Wilson, Scott. Landscape Maintenance. San Luis Obispo, California: California State Polytechnic College.

The 50 page publication covers soils, fertilizers, irrigation, turf, garden pests and control, plant diseases, arboriculture, gardening tools, scheduling and business practices. The publication is well illustrated.

50. Establishment and Maintenance of Lawns. Columbus, Ohio: Vocational Agriculture Service and Department of Agricultural Education; The Ohio State University, 1965.

Selected References for More Information

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Germinating Flower Seeds. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois, Circular #1077.

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Planning and Operating a Garden Center. Urbana, Illinois: Vocational Agriculture Service, #5012.

Exploring Occupational Opportunities in the Retail Flower Shop Business. Urbana, Illinois: Vocational Agriculture Service, #5017.

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TURF

Establishing and Maintenance of a Lawn. Columbus, Ohio: Vocational Agriculture Service, State Department of Education, The Ohio State University, 1965.

Lawn and Ground Covers-A Sunset Book. Menlo Park, California: Lane Magazine and Book Company, 1964.

Turfgrass Diseases and Their Control. Urbana, Illinois: Vocational Agriculture Service, #5015.

Identifying and Controlling Lawn Insects. Urbana, Illinois: Vocational Agriculture Service, #5016.

ARBORICULTURE

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Steffels, Edwin F. The Pruning Manual. New York: Van Nostrund Reinhold Company, 1969.

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Shurtleff, M. C., Randell, Roscoe, and Meader, W. B. Home Orchard Pest Control. Urbana, Illinois: Cooperative Extension Service, College of Agriculture, University of Illinois, 1966, Circular #934.

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Magazines

1. Horticulture
   Horticulture
   300 Massachusetts Avenue
   Boston, MA 02115

2. Growers Talk
   Growers Talk
   George J. Ball, Inc.
   West Chicago, IL 60185

3. The Landscaper
   Circulation Manager
   Midwest Landscaping
   P. O. Box 440
   St. Charles, IL 60174

4. Lawn and Garden Marketing
   Intertec Publishing Corp.
   1014 Wyandette Street
   Kansas City, MO 64105

5. American Horticulturist
   The American Horticultural Society
   7931 East Boulevard Drive
   Alexandria, VA 22308

6. Florists' Review
   Florists' Publishing Company
   343 South Dearborn Street
   Chicago, IL 60604

7. Plants Alive
   Plants Alive
   2100 North 45th
   Seattle, WA 98103

8. Organic Gardening and Farming
   Organic Gardening and Farming
   33 East Minor Street
   Emanaus, PA 18049

9. American Nurseryman
   American Nurseryman Publishing Co.
   343 South Dearborn Street
   Chicago, IL 60604

SCHOOL FACILITIES, EQUIPMENT AND SUPPLIES

Suggested Facilities for Ornamental Horticulture Program

The following suggestions are intended as guides for facilities for an adequate program with space allocations for accommodating three classes of 15 to 20 students per class.

Space Allocations

Classroom	700-750 sq. ft.
Office	120 sq. ft. per instructor
Headhouse	500-600 sq. ft.
Greenhouse	1800-2400 sq. ft.
Mechanics Laboratory	12-1600 sq. ft.
Land Laboratory	3-5 acres

Classroom

A standard classroom equipped with a library unit and a demonstration table with hot and cold water and 115 volt electricity is advisable.

Office

Office space of approximately 120 square feet per teacher provides space for filing cabinet, desk, and teaching supplies.

Headhouse

The Headhouse may be attached to the greenhouse but need not be of the same construction. The floor should be of concrete. The headhouse should be equipped with portable benches, chalkboard, sink, refrigerator, soil sterilizer, storage shelves for pots, and soil bins for soil and other growth media.

The Greenhouse

The most practical greenhouse is a well-constructed commercial type. On a cost per square foot basis, wider houses tend to be more economical than narrow houses. A house of approximately 30 feet in width and 60 to 80 feet in length is suggested.

Greenhouse Systems

1. Heating--overhead gas or electricity, available at all times to maintain temperature.

2. Ventilation--fully automatic, no-draft fan jet type with plastic sleeve and automatic motorized ridge ventilator.

3. Cooling--fan and pad, fully automatic

4. Watering--provision for automatic watering and overhead outlets for hand watering.

5. Electrical Outlets--115 volt waterproof outlets every ten feet around the perimeter and one row of waterproof outlets overhead at the approximate center and every ten feet the length of the house.

Mechanics Laboratory

From 1200 to 1600 square feet of shop space should be provided for the instructional program in maintenance of small gas engines, larger power units, field and garden equipment, and small hand tools The mechanics laboratory should have a concrete floor, adequate lighting, ventilation, heating, and electrical power for operating repair equipment, including arc welder.

Land Laboratory

Three acres of good land should be provided for the development of a nursery, arboretum, turf plots, container stock area, student practice plots, and for landscape design practice.

Suggested Equipment and Supplies

The following list of individual and groups of tools, equipment, and supplies can be used as a guide in ordering

and assembling those items needed for the ornamental horticulture program. The extent and type of instruction a department undertakes will determine the needs for materials and equipment.

1. Small Shop Tools and Equipment for:
   a. Carpentry
   b. General maintenance and repair
   c. Pipe fitting
   d. Glazing
   e. Small engine maintenance and repair

2. Hand Field Tools and Equipment for:
   a. Cultivating
   b. Lawn maintenance
   c. Masonry
   d. Pruning and trimming

3. Power Field Equipment for:
   a. Cultivating
   b. Lawn maintenance
   c. Seeding and fertilizing
   d. Spraying
   e. Transporting
   f. Tree maintenance

4. Greenhouse and Headhouse Equipment
   a. Black cloth
   b. Chemical fogging, dusting, and spraying devices
   c. Fixtures (benches, bins, shelving, etc.)
   d. Greenhouse carts
   e. Growing lights
   f. Heating equipment
   g. Misting equipment
   h. Ventilating equipment
   i. Watering devices

5. Classroom and Laboratory Equipment
   a. Display facilities
   b. Instructional media
   c. Refrigeration
   d. Storage facilities (various types)
   e. Test and inspection equipment

6. Safety Equipment for:
   a. Fire protection
   b. Personal protection
      1. Eye
      2. Apparel
      3. Respiratory
   c. Poison storage
   d. Ventilation

7. Nursery and Greenhouse Equipment and Supplies
   a. Containers
      1. Flats
      2. Pots
   b. Display materials
      1. Hangings baskets
      2. Labels
      3. Stakes
      4. Twine
      5. Shadow boxes
      6. Racks
      7. Foil
      8. Ribbons
      9. Tapes
      10. Paper
      11. Vases
      12. Wreaths
      13. Preservatives
      14. Spray paints
      15. Foam
      16. Arrangement media
      17. Wire
      18. Packaging
   c. Growing supplies
      1. Bark dust
      2. Bulbs, seeds, plants
      3. Budding strips
      4. Stock plants
      5. Cuttings
      6. Fertilizers and lime
      7. Fumigants and pesticides
      8. Peat moss
      9. Perlite and vermiculite
      10. Plastic
      11. Soil, sand, gravel
      12. Hormones (growth, defoliation)
   d. Miscellaneous
      1. Burlap
      2. Grafting supplies

Reference:

Curriculum Guide for Ornamental Horticulture, Oregon Board of Education: Superintendent of Public Instruction, June, 1969.

AUDIO VISUAL SOURCES AND MATERIALS

1 av. Beginning Techniques in Flower Arranging
California State Polytechnic College N/A

2 av. Fertilizing and Watering Shade and Ornamental Trees #640
Vocational Agriculture Service
University of Illinois
Urbana, Illinois

3 av. Lets Explore a Lawn
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

4 av. Lawn Weeds Identification and Control #650
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois

5 av. Fruits: Their Growth and Classification
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

6 av. Steps to a Better Lawn #651
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois

7 av. Planting a Terrarium and How to Keep It #647
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois

8 av. Greenhouse-Use and Design #680
Vocational Agriculture Service
College of Agriculture
University of Illinois
Urbana, Illinois 61801

9 av. Plant Identification
Ornamental Horticulture Dept. N/A

10 av. Exhibiting Plant Products at the Fair
California State Polytechnic College N/A

11 av. Controlling Wild Hemp Marijuana
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois

12 av. Landscaping-Do's and Don'ts #642
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois

13 av. Ground Covers and Their Uses #646
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

14 av. Growing Media for Ornamental Plants
Vocational Education Production
California State Polytechnic College
San Luis, California 93401

15 av. The Elements of Pruning
Vocational Education Production
California State Polytechnic College
San Luis, California 93401

16 av. Fertilizing Ornamental Plants
Vocational Education Production
California State Polytechnic College
San Luis, California 93401

17 av. Propagating Ornamental Plants
Vocational Education Production
California State Polytechnic College
San Luis, California 93401

18 av. Controlling Pests of Ornamental Plants
Vocational Education Production
California State Polytechnic College
San Luis, California 93401

19 av. Lawns and Ground Covers
Vocational Education Production
California State Polytechnic College
San Luis, California 93401

20 av. Identifying Illinois Turfgrasses #652
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

21 av. Selecting Container Evergreens Part I #681
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

22 av. Selecting Container Evergreens Part II #682
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

23 av. Selecting Container Evergreens Part III #683
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

24 av. Practice Set for Foliage Plants Part II #611 (Supp.)
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

25 av. Structure of Flower Plants
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

26 av. Plant Factories
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

27 av. Let's Explore a Garden
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

28 av. What Makes Up a Flower Family
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

29 av. Flowers, Their Parts and Functions
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

30 av. Flowers, Fruits, and Seeds
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

31 av. Flowers to Wear Part I
California State Polytechnic College
San Luis, California 93401

32 av. Flowers to Wear Part II
California State Polytechnic College
San Luis, California 93401

33 av. Flowers to Wear Part III
California State Polytechnic College
San Luis, California 93401

34 av. Vegetables
California State Polytechnic College
San Luis, California 93401

35 av. Propagation by Air Layering #600
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

36 av. Flowers and You
Society of American Florists
Washington, D.C.

37 av. Pruning Flowering Trees #645
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

38 av. Balling and Burlapping Trees and Shrubs #641
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

39 av. Foliage Plant Identification Part I #610
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

40 av. Foliage Plant Identification Part II #611
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

41 av. Foliage Plant Identification Part III #612
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

42 av. Foliage Plant Identification Practice Set Part I #610 (Supp.)
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

43 av. Practice Set for Garden Flowers Part I #601 (Supp.)
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

44 av. Practice Set for Garden Flowers Part II #602 (Supp.)
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

45 av. Garden Flowers, Annuals Part I #601
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

46 av. Garden Flowers, Annuals Part II #602
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

47 av. Pruning and Grafting Fruit Trees
Nasco/NIA

48 av. Recognizing Medium Size Shrubs #661
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

49 av. Recognizing Large Shrubs and Small Trees #662
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

50 av. Recognizing Small Shrubs #660
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

51 av. Landscaping Homestead (I)
Division of Vocational Education
State Dept. of Education
Agriculture Education
Atlanta, Georgia

52 av. Landscape Homestead (II)
Division of Vocational Education
State Dept. of Education
Agriculture Education
Atlanta, Georgia

53 av. Landscape Homestead (III)
Division of Vocational Education
State Dept. of Education
Agriculture Education
Atlanta, Georgia

54 av. Telling Trees Apart
Society of Visual Education
1345 Crawford Avenue
Evanston, Illinois 60201

55 av. Landscaping Homestead (IV)
Division of Vocational Education
Agriculture Education
Atlanta, Georgia

56 av. Plantings I
Division of Vocational Education
Agriculture Education
Atlanta, Georgia

57 av. Plantings II
Division of Vocational Education
Agriculture Education
Atlanta, Georgia

58 av. Pruning Ornamental Shrubs
California Polytechnic College
San Luis, California 93401

59 av. Pruning Orchards
Division of Vocational Education
State Dept. of Education
Agriculture Education
Atlanta, Georgia

60 av. Pruning Evergreens #643
Vocational Agriculture Education
434 Mumford Hall
Urbana, Illinois 61801

61 av. Pruning Deciduous Shrubs and Trees #644
Vocational Agriculture Service
434 Mumford Hall
Urbana, Illinois 61801

Transparencies

Vocational Agriculture Service
434 Mumford Hall
Urbana, IL 61801

Landscape Planting and Bed Preparation

Landscape Construction

Landscape Construction Accessories

Shrubs - Identification

TEACHER COMPETENCIES AND TRAINING AVAILABLE

Opportunities are available for instructors in Ornamental Horticulture to upgrade themselves and keep abreast in their field. Following is a partial listing of ways to increase teacher competencies:

1. Attend inservice workshops held during the Annual Agricultural Occupations Teachers Conference.

2. Request area community colleges or senior colleges to conduct a workshop held in your area of interest.

3. Attend state-wide meetings such as:
   a. Illinois Landscapers Annual Field Day.
   b. Flower Quality Judging Workshop.
   c. The Mid-America Horticultural Trade Show sponsored by Illinois State Nurserymen, Illinois Landscape Contractors Association, and Wisconsin Landscape Federation.

4. Attend area meetings conducted by the local County Cooperative Extension Service.

5. Request the D.V.T.E., I.V.A., V.A.S., and the industry to conduct workshops in your special interest area.

6. Enroll in course work at a university, either on-campus or extramural. On the following pages is a list of colleges and universities in the United States that offer training in Ornamental Horticulture.

COLLEGES AND UNIVERSITIES OFFERING PROFESSIONAL TRAINING

HORTICULTURE AND
* ORNAMENTAL HORTICULTURE
(Only the schools with asterisks include ornamental horticulture)

University of Arizona, Tucson
*California State Polytechnic College, San Luis Obispo
*University of California, Davis Campus, Davis
*Fresno State College, Fresno
*Colorado State University, Fort Collins
University of Connecticut, Storrs
University of Delaware, Newark
*University of Florida, Gainesville
Florida Southern College, Lakeland
*University of Illinois, Urbana
Southern Illinois University, Carbondale
Purdue University, Lafayette
Iowa State University of Science and Technology, Ames
McNeese State College, Lake Charles
*Michigan State University, East Lansing
University of Missouri, Columbia
University of New Hampshire, Durham
New Mexico State University, University Park
*Cornell University, Ithaca and New York City
Agricultural and Technical College of North Carolina, Greensboro
*Ohio State University, Columbus
Oklahoma State University, Stillwater
Oregon State University, Corvallis
Pennsylvania State University, University Park
Delaware Valley College of Science and Agriculture, Doylestown
University of Rhode Island, Kingston
Clemson University, Clemson
*Texas Technological College, Lubbock
Texas A & M College, College Station
Utah State University of Agriculture and Applied Science, Logan
Virginia Polytechnic Institute, Blacksburg, Cedar City and Ephraim
Washington State University, Pullman
University of Wisconsin, Madison

FLORICULTURE
(All are 4-year programs except schools marked with asterisks, which are 2-year programs.)

Auburn University, Auburn

University of California, Los Angeles
*City College of San Francisco, San Francisco
Colorado State University, Fort Collins
University of Connecticut, Storrs
University of Florida, Gainesville
University of Illinois, Urbana
Purdue University, Lafayette
Iowa State University of Science and Technology. Ames
University of Maryland, College Park
*University of Massachusetts, Amherst
Michigan State University, East Lansing
University of Minnesota Minneapolis
Mississippi State University, Starkville
University of Missouri, Columbia
University of New Hampshire, Durham
Rutgers, The State University, New Brunswick
*New York State Agricultural and Technical Institute at Alfred, Cobleskill, and Farmingdale (Cornell)
Agricultural and Technical College of North Carolina, Greensboro
*North Dakota School of Forestry, Bettineau
Ohio State University, Columbus
Oregon State University, Corvallis
Delaware Valley College of Science and Agriculture, Doylestown
Pennsylvania State University, University Park
Texas A & M College, College Station
Washington State University, Pullman
University of Wisconsin, Madison

LANDSCAPE ARCHITECTURE

California State Polytechnic College, San Luis Obispo
University of California, Berkeley Campus, Berkeley
University of Georgia, Athens
University of Illinois, Circle Campus, Chicago
Iowa State University of Science and Technology, Ames
Kansas State University, Manhattan
Louisiana State University, New Orleans
University of Massachusetts, Amherst and Boston
Harvard University, Cambridge, Massachusetts
Michigan State University, East Lansing
University of Michigan, Ann Arbor
New York State University College of Forestry, Syracuse University, Syracuse
North Carolina State University, Raleigh
Ohio State University, Columbus
University of Oregon, Eugene and Portland
University of Pennsylvania, Philadelphia
Pennsylvania State University, University Park
Rhode Island School of Design, Providence
University of Wisconsin, Madison

TURF MANAGEMENT

University of Florida, Gainesville
University of Massachusetts, Amherst and Boston
Cornell, Ithaca and New York
New York State University Institute, Farmingdale
University of Rhode Island, Kingston
University of Wisconsin, Madison

PROFESSIONAL AND TECHNICAL SOCIETIES AND ORGANIZATIONS

American Association of Botanical Gardens and Arboretums
Department of Horticulture, New Mexico University, Box 530, University Park, New Mexico 88070

American Association of Nurserymen, Inc.
835 Southern Building, 15th and H Streets, N.W., Washington, D.C. 20005

American Forestry Association
919 17th Street, N.W., Washington, D.C. 20006

American Horticultural Society, Inc.
1600 Bladensburg Road, N.W., Washington, D.C. 20002

American Institute of Park Executives, Inc.
Ogleybay Park, Wheeling, West Virginia 26003

American Rhododendron Society
3514 North Russet Street, Portland, Oregon 97200

American Rose Society
4048 Rosella Place, Columbus, Ohio 43200

American Seed Trade Association
Southern Building, Suite 803, 1030 15th Street, N.W., Washington, D.C. 20005

American Society for Horticultural Science
Department of Horticulture, Michigan State University, East Lansing, Michigan 48823

American Society of Landscape Architects, Inc.
2000 K Street, N.W., Washington, D.C. 20006

Holly Society of America, Inc.
P.O. Box 8445, Baltimore, Maryland 21234

International Plant Propagator's Society
Rutgers, The State University, Department of Horticulture, New Brunswick, New Jersey 08903

International Shade Tree Conference
1827 Neil Avenue, Columbus, Ohio 43210

Men's Garden Clubs of America
50 Eaton Street, Morrisville, New York 13408

National Arborists Association
P.O. Box 426, Wooster, Ohio 44691

National Association of Gardeners, Inc.
194 Old Country Road, Mineola, New York 15501

National Landscape Nurserymen's Association
P.O. Drawer 281, Leesburg, Florida 32748

National Parks Association
1300 New Hampshire Avenue, N.W., Washington, D.C. 20036

Society of American Florists
Suite H-220, Sheraton Park Hotel, Washington, D.C. 20008

Society of American Foresters
Suite 3000, 1010 16th Street, N.W., Washington, D.C. 20036

Women's National Farm and Garden Association
3017 Military Road, Washington, D.C. 20015

Inclusion or omission of an organization or society in this list does not imply approval or disapproval of it. Additional information regarding local chapters or sections of these organizations or societies may be obtained by writing directly to the executive secretary at the listed address.